

August 21, 2019

**VIA HAND DELIVERY AND ELECTRONIC MAIL**

Luly E. Massaro, Commission Clerk  
Rhode Island Public Utilities Commission  
89 Jefferson Boulevard  
Warwick, RI 02888

**RE: Docket 4770 – Gas Business Enablement Program Quarterly Report  
Third Quarter of Rate Year 1  
Responses to Division Data Requests – Set 1**

Dear Ms. Massaro:

On behalf of National Grid,<sup>1</sup> I enclose one original and nine copies of the Company's responses to the first set of data requests issued by the Rhode Island Division of Public Utilities and Carriers concerning the above-referenced matter.

Thank you for your attention to this transmittal. If you have any questions, please contact me at 781-907-2153.

Very truly yours,



Celia B. O'Brien

Enclosures

cc: Docket 4770 Service List  
Jonathan Schrag, Division  
John Bell, Division  
Al Mancini, Division  
Leo Wold, Esq.  
Christy Hetherington, Esq.

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<sup>1</sup> The Narragansett Electric Company d/b/a National Grid (National Grid or the Company).

### Certificate of Service

I hereby certify that a copy of the cover letter and any materials accompanying this certificate was electronically transmitted to the individuals listed below.

The paper copies of this filing are being hand delivered to the Rhode Island Public Utilities Commission and to the Rhode Island Division of Public Utilities and Carriers.



\_\_\_\_\_  
Joanne M. Scanlon

August 21, 2019  
Date

**Docket No. 4770 - National Grid – Rate Application**  
**Service list updated 3/12/2019**

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The Narragansett Electric Company  
d/b/a National Grid  
RIPUC Docket No. 4770  
Gas Business Enablement Program Quarterly Report  
Rate Year 1 - Third Quarter Ended May 31, 2019  
Responses to the Division's First Set of Data Requests  
Issued on July 31, 2019

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Division 1-1

Request:

The Settlement Agreement in Section 12 a. states: "The total Service Company costs of the Gas Business Enablement Program for capital expenses and project operating expenses relating to the capital investment (excluding run the business costs) are forecasted to be \$478.3 million through Fiscal Year (FY) 2023." However, Section V. of the Third Quarter Report states: "Overall, the Gas Business Enablement Program remains on track to deliver its scope of work as planned and anticipates coming in within the original planned budget of \$458.1 million plus sanctioned contingency of \$61 million."

- (a) Please explain why the two budget numbers are different between what is in the Settlement and what is referenced in the Report.
- (b) Please explain whether the Company is saying that it is on track to deliver the scope of work within \$458.1 million or the Company is saying that it is on track to deliver the scope within \$519.1 million.

Response:

- (a) The \$478.3 million amount referenced in the Amended Settlement Agreement approved by the Public Utilities Commission in Docket No. 4770 included \$458.1 million representing the original budget for the period Fiscal Year (FY) 2018 through FY 2023 for the total National Grid USA Service Company, Inc. (Service Company) Gas Business Enablement Program capital investment and project operating expenses relating to capital investment, plus \$20.1 million incurred in FY 2017 for initial development of the business case, assessment of processes and applications, and high-level design for the Gas Business Enablement Program.

Please note the \$20.1 million of spend in FY 2017 was funded by shareholders and was excluded from the Company's approved revenue requirements for Narragansett Electric and Narragansett Gas in Docket No. 4770. The budget total of \$458.1 million reflected in the Company's Gas Business Enablement Program quarterly report for the third quarter of Rate Year 1 represents the original planned budget for the period FY 2018 through FY 2023 only. Please see the Company's responses to Division 3-61 and Division 17-13 in Docket No. 4770, copies of which are provided as Attachment DIV 1-1-1 and Attachment DIV 1-1-2, respectively, for ease of reference.

Division 1-1, page 2

- (b) The total cost (exclusive of the \$20.1 million in FY 2017) of the Gas Business Enablement program for all National Grid's U.S. operating companies is currently estimated at \$519.3 million. The \$519.3 million total cost estimate includes: (i) the \$458.1 million forecast reflected in Docket No. 4770; and (ii) \$61.0 million of contingency referenced in Docket No. 4770. As noted in the response to part (a) above, base distribution rates under the multi-year rate plan approved by the PUC in Docket No. 4770 included the \$458.1 million forecast for the Gas Business Enablement program for all National Grid's U.S. operating companies from FY 2018 through FY 2023, without the \$20.1 million for the initial development of the business case in FY 2017. Although the Company identified a program contingency of \$61 million in its filing, the \$61 million contingency was not reflected in the Company's revenue requirements for Narragansett Electric or Narragansett Gas because those costs were not sufficiently certain and, therefore, are not reflected in the approved base distribution rates. Please see the joint pre-filed direct testimony of Company Witnesses Anthony H. Johnston and Christopher J. Connolly at Page 42 (Bates Page 119, Book 7 of 17).



Division 3-61

Request:

Referring to the testimony of Johnson and Connolly, p. 8, please provide an itemized breakdown of the multi-year cost of \$478.3 million by cost type. Please also show the forecasted expenses to be incurred by each of the companies across all the jurisdictions by year through completion of the project. (Include all project costs, including without limitation O&M, Service Company Rental expenses, and any capital projects charged solely to the applicable distribution company).

Response:

Please see Attachment DIV 3-61 for the information requested. Attachment DIV 3-61 provides a breakdown of the \$478.3 million by its capitalized and non-capitalized components. The capitalized components are further broken down by workstream and "Portfolio Anchor" designation. The timing of the implementation of each workstream/portfolio anchor designation by jurisdiction is shown on Page 5 of the attachment. The costs that are not eligible to be capitalized in accordance with generally accepted accounting principles are detailed on Lines 26 through 45 on Page 1 of the attachment. In addition, the breakdown of the \$478.3 million Gas Business Enablement investment and the components described above by jurisdiction is provided on Pages 2 through 4 of the attachment. The distribution of these costs by jurisdiction will be spread by the use of allocation codes. The percentages shown on the attachment are the current percentages in effect for Fiscal Year 2018. These allocation percentages are updated each fiscal year.

Ongoing costs to operate and maintain the various Gas Business Enablement systems referred to as run the business costs will be distributed to each jurisdiction using the allocation code C-210, which allocates costs between all US retail gas companies based on number of customers.

# Attachment DIV 1-1-1

## GBE Quarterly Report - Third Quarter Ended May 31, 2019

THE NARRAGANSETT ELECTRIC COMPANY  
d/b/a NATIONAL GRID  
RIPUC Docket 4770  
Attachment DIV 3-61  
Page 1 of 6

The Narragansett Electric Company  
Gas Business Enablement  
Total forecasted GBE Program spend by jurisdiction

				Total US GBE Investment (recorded on the books of the Service Company)		
Line	Portfolio Anchor	Workstream	Allocation Code	Total US CapEx Spend	Total US Non-CapEx Spend	Total US Spend
<b>Cap Ex Investment</b>						
1	PA1-3	Asset Management	C-210	\$ 27,740,204	\$ -	\$ 27,740,204
2	PA1-3	Asset Management / GIS	C-210	\$ 57,094,854	\$ -	\$ 57,094,854
3	PA1-3	Work Management (Maximo)	C-210	\$ 77,789,270	\$ -	\$ 77,789,270
4	PA4	Asset Management	C-210	\$ 11,194,992	\$ -	\$ 11,194,992
5	PA4	Asset Management / GIS	C-210	\$ 11,593,919	\$ -	\$ 11,593,919
6	PA4	Work Management (Maximo)	C-210	\$ 23,162,044	\$ -	\$ 23,162,044
7	PA5	Asset Management	C-210	\$ 7,543,962	\$ -	\$ 7,543,962
8	PA5	Asset Management / GIS	C-210	\$ 5,708,998	\$ -	\$ 5,708,998
9	PA5	Work Management (Maximo)	C-210	\$ 8,821,682	\$ -	\$ 8,821,682
10	PA6	Asset Management	C-210	\$ 3,430,354	\$ -	\$ 3,430,354
11	PA6	Asset Management / GIS	C-210	\$ 2,426,260	\$ -	\$ 2,426,260
12	PA6	Work Management (Maximo)	C-210	\$ 2,669,104	\$ -	\$ 2,669,104
13	PA1-3	Customer Engagement	C-175	\$ 21,662,720	\$ -	\$ 21,662,720
14	PA4	Customer Engagement	C-175	\$ 5,375,307	\$ -	\$ 5,375,307
15	PA1-3	WM-SDM	C-175	\$ 21,241,751	\$ -	\$ 21,241,751
16	PA4	WM-SDM	C-210	\$ 7,223,210	\$ -	\$ 7,223,210
17	PA5	WM-SDM	C-210	\$ 704,896	\$ -	\$ 704,896
18	PA6	WM-SDM	C-210	\$ 566,330	\$ -	\$ 566,330
19	PA1-3	Supply Chain	C-210	\$ 8,802,068	\$ -	\$ 8,802,068
20	PA4	Supply Chain	C-210	\$ 2,299,468	\$ -	\$ 2,299,468
21	PA1-3	Hardware (CapEx)	C-175	\$ 4,979,300	\$ -	\$ 4,979,300
22	PA4	Hardware (CapEx)	C-210	\$ 1,348,500	\$ -	\$ 1,348,500
23	PA5	Hardware (CapEx)	C-210	\$ 1,050,000	\$ -	\$ 1,050,000
24	PA6	Hardware (CapEx)	C-210	\$ -	\$ -	\$ -
25	PA1-3	PP Enhancements (CapEx)	G-012	\$ 990,833	\$ -	\$ 990,833
<b>Non-Cap Ex Investment</b>						
26		Business Enablement & Change Management	C-210	\$ -	\$ 12,833,790	\$ 12,833,790
27		Data Management	C-210	\$ -	\$ 1,367,967	\$ 1,367,967
28		IS Enabling	C-210	\$ -	\$ 8,306,845	\$ 8,306,845
29		Operating Model	C-210	\$ -	\$ 1,426,405	\$ 1,426,405
30		Portfolio Office	C-210	\$ -	\$ 35,089,803	\$ 35,089,803
31		Strategic BECM	C-210	\$ -	\$ 11,617,248	\$ 11,617,248
32		Software	C-210	\$ -	\$ 13,868,273	\$ 13,868,273
33		Hardware	C-210	\$ -	\$ 3,767,200	\$ 3,767,200
34		PP Enhancements	C-210	\$ -	\$ 1,840,119	\$ 1,840,119
35		Tech Training - Labor	C-210	\$ -	\$ 19,750,000	\$ 19,750,000
36		Data Migration	C-210	\$ -	\$ 713,574	\$ 713,574
37		Value Assurance	C-210	\$ -	\$ 2,600,000	\$ 2,600,000
38		Phase 1	C-210	\$ -	\$ 6,130,746	\$ 6,130,746
39		Asset Management	C-210	\$ -	\$ 1,823,624	\$ 1,823,624
40		Asset Management / GIS	C-210	\$ -	\$ 2,190,698	\$ 2,190,698
41		Work Management (Maximo)	C-210	\$ -	\$ 6,455,987	\$ 6,455,987
42		Customer Engagement	C-210	\$ -	\$ 2,072,189	\$ 2,072,189
43		WM-SDM	C-210	\$ -	\$ 7,980,079	\$ 7,980,079
44		Supply Chain	C-210	\$ -	\$ 2,887,559	\$ 2,887,559
45		FY17 Non-CapEx Investment	G-210	\$ -	\$ 20,142,307	\$ 20,142,307
46		Totals		\$ 315,420,028	\$ 162,864,413	\$ 478,284,440

### Fiscal Year 2018 Bill Pool Allocators

All US Electric and Gas Distribution Companies--Number of Customers	C-175	All Retail Companies	100.00%
All US Gas Distribution Companies--Number of Customers	C-210	All Gas Retail Companies	100.00%
All US Electric and Gas Distribution Companies--General 3-Point Allocator (1)	G-012	All Companies	100.00%

- (1) 3-Point Allocator is based on weighting of each company's (1) Net Plant,  
(2) Net Margin & (3) Net Operations & Maintenance Expense

Attachment DIV 1-1-1  
GBE Quarterly Report - Third Quarter Ended May 31, 2019

THE NARRAGANSETT ELECTRIC COMPANY  
d/b/a NATIONAL GRID  
RIPUC Docket 4770  
Attachment DIV 3-61  
Page 2 of 6

The Narragansett Electric Company  
Gas Business Enablement  
Total forecasted GBE Program spend by jurisdiction

Line	Portfolio Anchor    Workstream		Allocation Code	RI-Electric Share					
				CapEx	Non-CapEx	Total RI Electric			
<b>Cap Ex Investment</b>									
1	PA1-3	Asset Management	C-210	\$	-	\$	-	\$	-
2	PA1-3	Asset Management / GIS	C-210	\$	-	\$	-	\$	-
3	PA1-3	Work Management (Maximo)	C-210	\$	-	\$	-	\$	-
4	PA4	Asset Management	C-210	\$	-	\$	-	\$	-
5	PA4	Asset Management / GIS	C-210	\$	-	\$	-	\$	-
6	PA4	Work Management (Maximo)	C-210	\$	-	\$	-	\$	-
7	PA5	Asset Management	C-210	\$	-	\$	-	\$	-
8	PA5	Asset Management / GIS	C-210	\$	-	\$	-	\$	-
9	PA5	Work Management (Maximo)	C-210	\$	-	\$	-	\$	-
10	PA6	Asset Management	C-210	\$	-	\$	-	\$	-
11	PA6	Asset Management / GIS	C-210	\$	-	\$	-	\$	-
12	PA6	Work Management (Maximo)	C-210	\$	-	\$	-	\$	-
13	PA1-3	Customer Engagement	C-175	\$	1,503,393	\$	-	\$	1,503,393
14	PA4	Customer Engagement	C-175	\$	373,046	\$	-	\$	373,046
15	PA1-3	WM-SDM	C-175	\$	1,474,178	\$	-	\$	1,474,178
16	PA4	WM-SDM	C-210	\$	-	\$	-	\$	-
17	PA5	WM-SDM	C-210	\$	-	\$	-	\$	-
18	PA6	WM-SDM	C-210	\$	-	\$	-	\$	-
19	PA1-3	Supply Chain	C-210	\$	-	\$	-	\$	-
20	PA4	Supply Chain	C-210	\$	-	\$	-	\$	-
21	PA1-3	Hardware (CapEx)	C-175	\$	345,563	\$	-	\$	345,563
22	PA4	Hardware (CapEx)	C-210	\$	-	\$	-	\$	-
23	PA5	Hardware (CapEx)	C-210	\$	-	\$	-	\$	-
24	PA6	Hardware (CapEx)	C-210	\$	-	\$	-	\$	-
25	PA1-3	PP Enhancements (CapEx)	G-012	\$	78,078	\$	-	\$	78,078
<b>Non-Cap Ex Investment</b>									
26		Business Enablement & Change Management	C-210	\$	-	\$	-	\$	-
27		Data Management	C-210	\$	-	\$	-	\$	-
28		IS Enabling	C-210	\$	-	\$	-	\$	-
29		Operating Model	C-210	\$	-	\$	-	\$	-
30		Portfolio Office	C-210	\$	-	\$	-	\$	-
31		Strategic BECM	C-210	\$	-	\$	-	\$	-
32		Software	C-210	\$	-	\$	-	\$	-
33		Hardware	C-210	\$	-	\$	-	\$	-
34		PP Enhancements	C-210	\$	-	\$	-	\$	-
35		Tech Training - Labor	C-210	\$	-	\$	-	\$	-
36		Data Migration	C-210	\$	-	\$	-	\$	-
37		Value Assurance	C-210	\$	-	\$	-	\$	-
38		Phase 1	C-210	\$	-	\$	-	\$	-
39		Asset Management	C-210	\$	-	\$	-	\$	-
40		Asset Management / GIS	C-210	\$	-	\$	-	\$	-
41		Work Management (Maximo)	C-210	\$	-	\$	-	\$	-
42		Customer Engagement	C-210	\$	-	\$	-	\$	-
43		WM-SDM	C-210	\$	-	\$	-	\$	-
44		Supply Chain	C-210	\$	-	\$	-	\$	-
45		FY17 Non-CapEx Investment	G-210	\$	-	\$	-	\$	-
46	<b>Totals</b>				<b>\$ 3,774,258</b>	<b>\$</b>	<b>-</b>	<b>\$ 3,774,258</b>	<b></b>

**Fiscal Year 2018 Bill Pool Allocators**

All US Electric and Gas Distribution Companies--Number of Customers	C-175	RI Electric
All US Gas Distribution Companies--Number of Customers	C-210	6.94%
All US Electric and Gas Distribution Companies--General 3-Point Allocator (1)	G-012	0.00%
		7.88%

- (1) 3-Point Allocator is based on weighting of each company's (1) Net Plant,  
(2) Net Margin & (3) Net Operations & Maintenance Expense

# Attachment DIV 1-1-1

## GBE Quarterly Report - Third Quarter Ended May 31, 2019

THE NARRAGANSETT ELECTRIC COMPANY  
d/b/a NATIONAL GRID  
RIPUC Docket 4770  
Attachment DIV 3-61  
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The Narragansett Electric Company  
Gas Business Enablement  
Total forecasted GBE Program spend by jurisdiction

Line	Portfolio		Allocation Code	RI-Gas Share		
	Anchor	Workstream		CapEx	Non-CapEx	Total RI Gas
<b>Cap Ex Investment</b>						
1	PA1-3	Asset Management	C-210	\$ 2,044,453	\$ -	\$ 2,044,453
2	PA1-3	Asset Management / GIS	C-210	\$ 4,207,891	\$ -	\$ 4,207,891
3	PA1-3	Work Management (Maximo)	C-210	\$ 5,733,069	\$ -	\$ 5,733,069
4	PA4	Asset Management	C-210	\$ 825,071	\$ -	\$ 825,071
5	PA4	Asset Management / GIS	C-210	\$ 854,472	\$ -	\$ 854,472
6	PA4	Work Management (Maximo)	C-210	\$ 1,707,043	\$ -	\$ 1,707,043
7	PA5	Asset Management	C-210	\$ 555,990	\$ -	\$ 555,990
8	PA5	Asset Management / GIS	C-210	\$ 420,753	\$ -	\$ 420,753
9	PA5	Work Management (Maximo)	C-210	\$ 650,158	\$ -	\$ 650,158
10	PA6	Asset Management	C-210	\$ 252,817	\$ -	\$ 252,817
11	PA6	Asset Management / GIS	C-210	\$ 178,815	\$ -	\$ 178,815
12	PA6	Work Management (Maximo)	C-210	\$ 196,713	\$ -	\$ 196,713
13	PA1-3	Customer Engagement	C-175	\$ 816,685	\$ -	\$ 816,685
14	PA4	Customer Engagement	C-175	\$ 202,649	\$ -	\$ 202,649
15	PA1-3	WM-SDM	C-175	\$ 800,814	\$ -	\$ 800,814
16	PA4	WM-SDM	C-210	\$ 532,351	\$ -	\$ 532,351
17	PA5	WM-SDM	C-210	\$ 51,951	\$ -	\$ 51,951
18	PA6	WM-SDM	C-210	\$ 41,739	\$ -	\$ 41,739
19	PA1-3	Supply Chain	C-210	\$ 648,712	\$ -	\$ 648,712
20	PA4	Supply Chain	C-210	\$ 169,471	\$ -	\$ 169,471
21	PA1-3	Hardware (CapEx)	C-175	\$ 187,720	\$ -	\$ 187,720
22	PA4	Hardware (CapEx)	C-210	\$ 99,384	\$ -	\$ 99,384
23	PA5	Hardware (CapEx)	C-210	\$ 77,385	\$ -	\$ 77,385
24	PA6	Hardware (CapEx)	C-210	\$ -	\$ -	\$ -
25	PA1-3	PP Enhancements (CapEx)	G-012	\$ 34,580	\$ -	\$ 34,580
<b>Non-Cap Ex Investment</b>						
26		Business Enablement & Change Management	C-210	\$ -	\$ 945,850	\$ 945,850
27		Data Management	C-210	\$ -	\$ 100,819	\$ 100,819
28		IS Enabling	C-210	\$ -	\$ 612,215	\$ 612,215
29		Operating Model	C-210	\$ -	\$ 105,126	\$ 105,126
30		Portfolio Office	C-210	\$ -	\$ 2,586,118	\$ 2,586,118
31		Strategic BECM	C-210	\$ -	\$ 856,191	\$ 856,191
32		Software	C-210	\$ -	\$ 1,022,092	\$ 1,022,092
33		Hardware	C-210	\$ -	\$ 277,643	\$ 277,643
34		PP Enhancements	C-210	\$ -	\$ 135,617	\$ 135,617
35		Tech Training - Labor	C-210	\$ -	\$ 1,455,575	\$ 1,455,575
36		Data Migration	C-210	\$ -	\$ 52,590	\$ 52,590
37		Value Assurance	C-210	\$ -	\$ 191,620	\$ 191,620
38		Phase 1	C-210	\$ -	\$ 451,836	\$ 451,836
39		Asset Management	C-210	\$ -	\$ 134,401	\$ 134,401
40		Asset Management / GIS	C-210	\$ -	\$ 161,454	\$ 161,454
41		Work Management (Maximo)	C-210	\$ -	\$ 475,806	\$ 475,806
42		Customer Engagement	C-210	\$ -	\$ 152,720	\$ 152,720
43		WM-SDM	C-210	\$ -	\$ 588,132	\$ 588,132
44		Supply Chain	C-210	\$ -	\$ 212,813	\$ 212,813
45		FY17 Non-CapEx Investment	G-210	\$ -	\$ 1,485,947	\$ 1,485,947
46		Totals		\$ 21,290,685	\$ 12,004,566	\$ 33,295,251

### Fiscal Year 2018 Bill Pool Allocators

All US Electric and Gas Distribution Companies--Number of Customers	C-175	RI Gas
All US Gas Distribution Companies--Number of Customers	C-210	3.77%
All US Electric and Gas Distribution Companies--General 3-Point Allocator (1)	G-012	7.37%
		3.49%

- (1) 3-Point Allocator is based on weighting of each company's (1) Net Plant,  
(2) Net Margin & (3) Net Operations & Maintenance Expense

# Attachment DIV 1-1-1

## GBE Quarterly Report - Third Quarter Ended May 31, 2019

THE NARRAGANSETT ELECTRIC COMPANY  
d/b/a NATIONAL GRID  
RIPUC Docket 4770  
Attachment DIV 3-61  
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The Narragansett Electric Company  
Gas Business Enablement  
Total forecasted GBE Program spend by jurisdiction

Line	Portfolio Anchor Workstream	Allocation Code						
			MA Share	NY Share			NGUSA Parent Co.	Total GBE
			Total MA	Total NY				
<b>Cap Ex Investment</b>								
1	PA1-3 Asset Management	C-210	\$ 6,862,927	\$ 18,832,825	\$	-	\$	27,740,204
2	PA1-3 Asset Management / GIS	C-210	\$ 14,125,267	\$ 38,761,696	\$	-	\$	57,094,854
3	PA1-3 Work Management (Maximo)	C-210	\$ 19,245,065	\$ 52,811,135	\$	-	\$	77,789,270
4	PA4 Asset Management	C-210	\$ 2,769,641	\$ 7,600,280	\$	-	\$	11,194,992
5	PA4 Asset Management / GIS	C-210	\$ 2,868,336	\$ 7,871,112	\$	-	\$	11,593,919
6	PA4 Work Management (Maximo)	C-210	\$ 5,730,290	\$ 15,724,712	\$	-	\$	23,162,044
7	PA5 Asset Management	C-210	\$ 1,866,376	\$ 5,121,596	\$	-	\$	7,543,962
8	PA5 Asset Management / GIS	C-210	\$ 1,412,406	\$ 3,875,839	\$	-	\$	5,708,998
9	PA5 Work Management (Maximo)	C-210	\$ 2,182,484	\$ 5,989,040	\$	-	\$	8,821,682
10	PA6 Asset Management	C-210	\$ 848,670	\$ 2,328,867	\$	-	\$	3,430,354
11	PA6 Asset Management / GIS	C-210	\$ 600,257	\$ 1,647,188	\$	-	\$	2,426,260
12	PA6 Work Management (Maximo)	C-210	\$ 660,336	\$ 1,812,055	\$	-	\$	2,669,104
13	PA1-3 Customer Engagement	C-175	\$ 6,771,766	\$ 12,570,876	\$	-	\$	21,662,720
14	PA4 Customer Engagement	C-175	\$ 1,680,321	\$ 3,119,291	\$	-	\$	5,375,307
15	PA1-3 WM-SDM	C-175	\$ 6,640,171	\$ 12,326,588	\$	-	\$	21,241,751
16	PA4 WM-SDM	C-210	\$ 1,787,022	\$ 4,903,837	\$	-	\$	7,223,210
17	PA5 WM-SDM	C-210	\$ 174,391	\$ 478,554	\$	-	\$	704,896
18	PA6 WM-SDM	C-210	\$ 140,110	\$ 384,481	\$	-	\$	566,330
19	PA1-3 Supply Chain	C-210	\$ 2,177,632	\$ 5,975,724	\$	-	\$	8,802,068
20	PA4 Supply Chain	C-210	\$ 568,888	\$ 1,561,109	\$	-	\$	2,299,468
21	PA1-3 Hardware (CapEx)	C-175	\$ 1,556,529	\$ 2,889,488	\$	-	\$	4,979,300
22	PA4 Hardware (CapEx)	C-210	\$ 333,619	\$ 915,497	\$	-	\$	1,348,500
23	PA5 Hardware (CapEx)	C-210	\$ 259,770	\$ 712,845	\$	-	\$	1,050,000
24	PA6 Hardware (CapEx)	C-210	\$ -	\$ -	\$	-	\$	-
25	PA1-3 PP Enhancements (CapEx)	G-012	\$ 373,346	\$ 504,829	\$	-	\$	990,833
<b>Non-Cap Ex Investment</b>								
26	Business Enablement & Change Management	C-210	\$ 3,175,080	\$ 8,712,860	\$	-	\$	12,833,790
27	Data Management	C-210	\$ 338,435	\$ 928,713	\$	-	\$	1,367,967
28	IS Enabling	C-210	\$ 2,055,114	\$ 5,639,517	\$	-	\$	8,306,845
29	Operating Model	C-210	\$ 352,893	\$ 968,386	\$	-	\$	1,426,405
30	Portfolio Office	C-210	\$ 8,681,217	\$ 23,822,467	\$	-	\$	35,089,803
31	Strategic BECM	C-210	\$ 2,874,107	\$ 7,886,950	\$	-	\$	11,617,248
32	Software	C-210	\$ 3,431,011	\$ 9,415,170	\$	-	\$	13,868,273
33	Hardware	C-210	\$ 932,005	\$ 2,557,552	\$	-	\$	3,767,200
34	PP Enhancements	C-210	\$ 455,245	\$ 1,249,257	\$	-	\$	1,840,119
35	Tech Training - Labor	C-210	\$ 4,886,150	\$ 13,408,275	\$	-	\$	19,750,000
36	Data Migration	C-210	\$ 176,538	\$ 484,445	\$	-	\$	713,574
37	Value Assurance	C-210	\$ 643,240	\$ 1,765,140	\$	-	\$	2,600,000
38	Phase 1	C-210	\$ 1,516,747	\$ 4,162,163	\$	-	\$	6,130,746
39	Asset Management	C-210	\$ 451,165	\$ 1,238,058	\$	-	\$	1,823,624
40	Asset Management / GIS	C-210	\$ 541,979	\$ 1,487,265	\$	-	\$	2,190,698
41	Work Management (Maximo)	C-210	\$ 1,597,211	\$ 4,382,970	\$	-	\$	6,455,987
42	Customer Engagement	C-210	\$ 512,659	\$ 1,406,809	\$	-	\$	2,072,189
43	WM-SDM	C-210	\$ 1,974,271	\$ 5,417,675	\$	-	\$	7,980,079
44	Supply Chain	C-210	\$ 714,382	\$ 1,960,364	\$	-	\$	2,887,559
45	FY17 Non-CapEx Investment	G-210	\$ 5,715,184	\$ 12,852,145	\$	89,032	\$	20,142,308
<b>46</b>	<b>Totals</b>		<b>\$ 41,024,633</b>	<b>\$ 109,746,183</b>	<b>\$</b>	<b>89,032</b>	<b>\$</b>	<b>478,284,441</b>
<b>Fiscal Year 2018 Bill Pool Allocators</b>			Total MA	Total NY				
All US Electric and Gas Distribution Companies--Number of Customers		C-175	31.26%	58.03%				
All US Gas Distribution Companies--Number of Customers		C-210	24.74%	67.89%				
All US Electric and Gas Distribution Companies--General 3-Point Allocator (1)		G-012	37.68%	50.95%				

- (1) 3-Point Allocator is based on weighting of each company's (1) Net Plant,  
(2) Net Margin & (3) Net Operations & Maintenance Expense

The Narragansett Electric Company  
Gas Business Enablement  
Key Project Implementation Dates

Line	Portfolio Anchor	Workstream	RI-Electric	RI-Gas	MA	NMPC	KEDNY	KEDLI
	<b>Cap Ex Investment</b>							
1	PA1-3	Asset Management	Oct-18	Oct-18	Jan-19	Apr-19	Jul-19	Oct-19
2	PA1-3	Asset Management / GIS	Oct-18	Oct-18	Jan-19	Apr-19	Jul-19	Oct-19
3	PA1-3	Work Management (Maximo)	Mar-18	Mar-18	Jan-19	Apr-19	Jul-19	Oct-19
4	PA4	Asset Management	Apr-20	Apr-20	Jun-20	Apr-19	Jul-19	Oct-19
5	PA4	Asset Management / GIS	Apr-20	Apr-20	Jun-20	Jul-20	Aug-20	Sep-20
6	PA4	Work Management (Maximo)	Apr-20	Apr-20	Jun-20	Jul-20	Aug-20	Sep-20
7	PA5	Asset Management	Apr-21	Apr-21	Apr-21	Apr-21	Apr-21	Apr-21
8	PA5	Asset Management / GIS	Apr-21	Apr-21	Apr-21	Apr-21	Apr-21	Apr-21
9	PA5	Work Management (Maximo)	Apr-21	Apr-21	Apr-21	Apr-21	Apr-21	Apr-21
10	PA6	Asset Management	Jul-21	Jul-21	Jul-21	Jul-21	Jul-21	Jul-21
11	PA6	Asset Management / GIS	Jul-21	Jul-21	Jul-21	Jul-21	Jul-21	Jul-21
12	PA6	Work Management (Maximo)	Jul-21	Jul-21	Jul-21	Jul-21	Jul-21	Jul-21
13	PA1-3	Customer Engagement	Oct-18	Oct-18	Jan-19	Apr-19	Jul-19	Oct-19
14	PA4	Customer Engagement	Apr-20	Apr-20	Jun-20	Jul-20	Aug-20	Sep-20
15	PA1-3	WM-SDM	Oct-18	Oct-18	Jan-19	Apr-19	Jul-19	Oct-19
16	PA4	WM-SDM	Apr-20	Apr-20	Jun-20	Jul-20	Aug-20	Sep-20
17	PA5	WM-SDM	Apr-21	Apr-21	Apr-21	Apr-21	Apr-21	Apr-21
18	PA6	WM-SDM	Jul-21	Jul-21	Jul-21	Jul-21	Jul-21	Jul-21
19	PA1-3	Supply Chain	Oct-18	Oct-18	Jan-19	Apr-19	Jul-19	Oct-19
20	PA4	Supply Chain	Apr-20	Apr-20	Jun-20	Jul-20	Aug-20	Sep-20
21	PA1-3	Hardware (CapEx)	Oct-18	Oct-18	Jan-19	Apr-19	Jul-19	Oct-19
22	PA4	Hardware (CapEx)	Apr-20	Apr-20	Jun-20	Jul-20	Aug-20	Sep-20
23	PA5	Hardware (CapEx)	Apr-21	Apr-21	Apr-21	Apr-21	Apr-21	Apr-21
24	PA6	Hardware (CapEx)	Jul-21	Jul-21	Jul-21	Jul-21	Jul-21	Jul-21
25	PA1-3	PP Enhancements (CapEx)	Aug-17	Aug-17	Aug-17	Aug-17	Aug-17	Aug-17

The Narragansett Electric Company  
Gas Business Enablement  
Service Company Allocation Codes Utilized

**Allocation Codes**

All US Electric and Gas Distribution Companies--Number of Customers	C-175
All US Gas Distribution Companies--Number of Customers	C-210
All US Electric and Gas Distribution Companies--General 3-Point Allocator (1)	G-012
All US Gas Distribution Companies--General 3-Point Allocator (1)	G-210

- (1) 3-Point Allocator is based on weighting of each companies' (1) Net Plant, (2) Net Margin and  
(3) Net Operations & Maintenance Expense

**Fiscal Year 2018 Allocation Percentages**

	<u>C-175</u>	<u>C-210</u>	<u>G-012</u>
RIELEC	6.94%	0.00%	7.88%
RIGAS	3.77%	7.37%	3.49%
<b>RI</b>	<b>10.71%</b>	<b>7.37%</b>	<b>11.37%</b>
BOS	9.80%	19.15%	11.04%
COL	2.86%	5.59%	2.51%
MECO/NANT	18.60%	0.00%	24.13%
<b>MA</b>	<b>31.26%</b>	<b>24.74%</b>	<b>37.68%</b>
NMPC	31.95%	16.93%	25.11%
KEDNY	17.83%	34.83%	15.25%
KEDLI	8.25%	16.13%	10.59%
<b>NY</b>	<b>58.03%</b>	<b>67.89%</b>	<b>50.95%</b>
	100.00%	100.00%	100.00%

**Fiscal Year 2017 Allocation Percentages**

	<u>G-210</u>
RIELEC	0.00%
RIGAS	7.41%
<b>RI</b>	<b>7.41%</b>
BOS	23.29%
COL	5.21%
MECO/NANT	0.00%
<b>MA</b>	<b>28.50%</b>
NMPC	12.44%
KEDNY	30.10%
KEDLI	21.55%
<b>NY</b>	<b>64.09%</b>
	100.00%

Division 17-13

Request:

Please refer to the testimony of Johnston and Connolly Page 9 of 48, and respond to the following:

- a. Explain how the costs for Rhode Island were developed.
- b. Provide all analysis that supports the allocation or assignment of costs to each company affiliate receiving a share of costs. Include all workpapers in working Excel format with all rows and columns labeled and defined.
- c. Explain why Narragansett electric customers are allocated a portion of the capital cost but none of the O&M expenses associated with Gas Business Enablement.
- d. Are any other of National Grid's electric utilities being allocated costs associated with the Gas Business Enablement program? If so, please provide an update to the itemized breakdown of the multi-year costs of \$478.3 million by cost type across all jurisdictions provided in Attachment DIV 3-61 with an additional breakdown by gas and electric share in each jurisdiction. If not, please explain why not?

Response:

- a. The capital expense allocated to Rhode Island is determined by using the allocated spend as described above in the response to part a. The Company will then use the allocated spend to calculate the return and amortization over the life of the workstream. The detailed calculation is described below:
  1. Rate Year Return – Average of the beginning and end of year unamortized asset balance (Average Balance) x Service Company Return
  2. Rate Year Return on Accumulated Deferred Taxes – Cash/Book Tax Difference x Service Company Return
  3. Total Return – Rate Year Return – Rate Year Return on Accumulated Deferred Taxes
  4. Amortization – Total Spend/Amortization Period (10 years)
  5. The operating expenses are allocated to Rhode Island using an allocator based on the number of gas retail customers with the exception of Customer Engagement, Workforce Management SDM, and Power Plant enhancement workstreams as

Prepared by or under the supervision of: Anthony Johnston, Christopher Connolly and Melissa Little



described in part b below . The operating expenses are then reduced by the burdened labor expense related to employees included in the Company's employee complement at June 30, 2017, for each fiscal year.

- b. As explained in the Company's response to PUC 5-13, a majority of the costs were allocated to the jurisdictions by the C210 (All Gas Retail Customers) allocator. Also, within the program, there are two workstreams related to Power Plant enhancements that are allocated to all companies by the G012 (General All Company 3 point allocator). The program also allocates costs to electric distribution companies for the below referenced workstreams using the C-175 (All Retail Customers) allocator. Please refer to the excel Attachment DIV 17-13 for further detail on how the costs are allocated to each jurisdiction.

Customer Enablement - Implementation of a Customer Relationship Management (CRM) application (Salesforce CRM software) in the Customer Contact Centers supports both electric and gas businesses. The application will be integrated with the Field Service Lightning application providing a 360 degree view of the customer. This workstream will also deliver new self-service features and capabilities to customers via website and NG apps to schedule appointments, receiving notifications, and manage accounts.

Work Management (SDM) - Implementation of standardized processes and new field mobile application (Salesforce Field Service Lightning) on a tablet device supporting the Customer Meter Service (CMS) Organization (gas and electric). The Dispatch and Scheduling Group (part of the CMS organization) will also receive the new software application to schedule and dispatch work to the field technicians. This group manages available resource capability to support customer appointment work, non-appointment work, and emergency response.

- c. The Company inadvertently omitted the allocation of O&M expenses to Narragansett Electric. The impact of this omission is an additional \$60,042 in O&M expense for the rate year to Narragansett Electric, and a decrease in O&M expense of \$36,527 to Narragansett Gas. The Rate Year and Data Years will be adjusted in a subsequent revision to the Company's cost of service.
- d. Yes. Other National Grid electric distribution utilities are being allocated costs associated with the Gas Business Enablement program, as described in part a above. Please refer to Attachment DIV 17-13 for an update to the itemized breakdown of the multi-year costs across all jurisdictions.

# Attachment DIV 1-1-2

## GBE Quarterly Report - Third Quarter Ended May 31, 2019

THE NARRAGANSETT ELECTRIC COMPANY  
d/b/a NATIONAL GRID  
RIPUC Docket 4770  
Attachment DIV 17-13  
Page 1 of 7

The Narragansett Electric Company  
Gas Business Enablement  
Total forecasted GBE Program spend by jurisdiction

				Total US GBE Investment (recorded on the books of the Service Company)		
Line	Portfolio Anchor	Workstream	Allocation Code	Total US CapEx Spend	Total US Non-CapEx Spend	Total US Spend
<b>Cap Ex Investment</b>						
1	PA1-3	Asset Management	C-210	\$ 27,740,204	\$ -	\$ 27,740,204
2	PA1-3	Asset Management / GIS	C-210	\$ 57,094,854	\$ -	\$ 57,094,854
3	PA1-3	Work Management (Maximo)	C-210	\$ 77,789,270	\$ -	\$ 77,789,270
4	PA4	Asset Management	C-210	\$ 11,194,992	\$ -	\$ 11,194,992
5	PA4	Asset Management / GIS	C-210	\$ 11,593,919	\$ -	\$ 11,593,919
6	PA4	Work Management (Maximo)	C-210	\$ 23,162,044	\$ -	\$ 23,162,044
7	PA5	Asset Management	C-210	\$ 7,543,962	\$ -	\$ 7,543,962
8	PA5	Asset Management / GIS	C-210	\$ 5,708,998	\$ -	\$ 5,708,998
9	PA5	Work Management (Maximo)	C-210	\$ 8,821,682	\$ -	\$ 8,821,682
10	PA6	Asset Management	C-210	\$ 3,430,354	\$ -	\$ 3,430,354
11	PA6	Asset Management / GIS	C-210	\$ 2,426,260	\$ -	\$ 2,426,260
12	PA6	Work Management (Maximo)	C-210	\$ 2,669,104	\$ -	\$ 2,669,104
13	PA1-3	Customer Engagement	C-175	\$ 21,662,720	\$ -	\$ 21,662,720
14	PA4	Customer Engagement	C-175	\$ 5,375,307	\$ -	\$ 5,375,307
15	PA1-3	WM-SDM	C-175	\$ 21,241,751	\$ -	\$ 21,241,751
16	PA4	WM-SDM	C-210	\$ 7,223,210	\$ -	\$ 7,223,210
17	PA5	WM-SDM	C-210	\$ 704,896	\$ -	\$ 704,896
18	PA6	WM-SDM	C-210	\$ 566,330	\$ -	\$ 566,330
19	PA1-3	Supply Chain	C-210	\$ 8,802,068	\$ -	\$ 8,802,068
20	PA4	Supply Chain	C-210	\$ 2,299,468	\$ -	\$ 2,299,468
21	PA1-3	Hardware (CapEx)	C-175	\$ 4,979,300	\$ -	\$ 4,979,300
22	PA4	Hardware (CapEx)	C-210	\$ 1,348,500	\$ -	\$ 1,348,500
23	PA5	Hardware (CapEx)	C-210	\$ 1,050,000	\$ -	\$ 1,050,000
24	PA6	Hardware (CapEx)	C-210	\$ -	\$ -	\$ -
25	PA1-3	PP Enhancements (CapEx)	G-012	\$ 990,833	\$ -	\$ 990,833
<b>Non-Cap Ex Investment</b>						
26		Business Enablement & Change Management	C-210	\$ -	\$ 12,833,790	\$ 12,833,790
27		Data Management	C-210	\$ -	\$ 1,367,967	\$ 1,367,967
28		IS Enabling	C-210	\$ -	\$ 8,306,845	\$ 8,306,845
29		Operating Model	C-210	\$ -	\$ 1,426,405	\$ 1,426,405
30		Portfolio Office	C-210	\$ -	\$ 35,089,803	\$ 35,089,803
31		Strategic BECM	C-210	\$ -	\$ 11,617,248	\$ 11,617,248
32		Software	C-210	\$ -	\$ 13,868,273	\$ 13,868,273
33		Hardware	C-210	\$ -	\$ 3,767,200	\$ 3,767,200
34		Power Plant Enhancements	G-012	\$ -	\$ 1,840,119	\$ 1,840,119
35		Tech Training - Labor	C-210	\$ -	\$ 19,750,000	\$ 19,750,000
36		Data Migration	C-210	\$ -	\$ 713,574	\$ 713,574
37		Value Assurance	C-210	\$ -	\$ 2,600,000	\$ 2,600,000
38		Phase I	C-210	\$ -	\$ 6,130,746	\$ 6,130,746
39		Asset Management	C-210	\$ -	\$ 1,823,624	\$ 1,823,624
40		Asset Management / GIS	C-210	\$ -	\$ 2,190,698	\$ 2,190,698
41		Work Management (Maximo)	C-210	\$ -	\$ 6,455,987	\$ 6,455,987
42		Customer Engagement	C-175	\$ -	\$ 2,072,189	\$ 2,072,189
43		WM-SDM (PA 1-3)	C-175	\$ -	\$ 5,763,782	\$ 5,763,782
44		WM-SDM (PA 4-6)	C-210	\$ -	\$ 2,216,297	\$ 2,216,297
45		Supply Chain	C-210	\$ -	\$ 2,887,559	\$ 2,887,559
46		FY17 Non-CapEx Investment	G-210	\$ -	\$ 20,142,307	\$ 20,142,307
47		Totals		\$ 315,420,028	\$ 162,864,413	\$ 478,284,441

### Fiscal Year 2018 Bill Pool Allocators

All US Electric and Gas Distribution Companies--Number of Customers	C-175	All Retail Companies	100.00%
All US Gas Distribution Companies--Number of Customers	C-210	All Gas Retail Companies	100.00%
All US Electric and Gas Distribution Companies--General 3-Point Allocator (1)	G-012	All Companies	100.00%

- (1) 3-Point Allocator is based on weighting of each company's (1) Net Plant,  
(2) Net Margin & (3) Net Operations & Maintenance Expense

# Attachment DIV 1-1-2

## GBE Quarterly Report - Third Quarter Ended May 31, 2019

THE NARRAGANSETT ELECTRIC COMPANY  
d/b/a NATIONAL GRID  
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The Narragansett Electric Company  
Gas Business Enablement  
Total forecasted GBE Program spend by jurisdiction

				RI-Electric Share				RI-Gas Share							
Line	Portfolio		Allocation Code	CapEx		Non-CapEx		Total RI Electric	CapEx		Non-CapEx		Total RI Gas		
	Anchor	Workstream													
Cap Ex Investment															
1	PA1-3	Asset Management	C-210	\$	-	\$	-	\$	-	\$	2,044,453	\$	-	\$	2,044,453
2	PA1-3	Asset Management / GIS	C-210	\$	-	\$	-	\$	-	\$	4,207,891	\$	-	\$	4,207,891
3	PA1-3	Work Management (Maximo)	C-210	\$	-	\$	-	\$	-	\$	5,733,069	\$	-	\$	5,733,069
4	PA4	Asset Management	C-210	\$	-	\$	-	\$	-	\$	825,071	\$	-	\$	825,071
5	PA4	Asset Management / GIS	C-210	\$	-	\$	-	\$	-	\$	854,472	\$	-	\$	854,472
6	PA4	Work Management (Maximo)	C-210	\$	-	\$	-	\$	-	\$	1,707,043	\$	-	\$	1,707,043
7	PA5	Asset Management	C-210	\$	-	\$	-	\$	-	\$	555,990	\$	-	\$	555,990
8	PA5	Asset Management / GIS	C-210	\$	-	\$	-	\$	-	\$	420,753	\$	-	\$	420,753
9	PA5	Work Management (Maximo)	C-210	\$	-	\$	-	\$	-	\$	650,158	\$	-	\$	650,158
10	PA6	Asset Management	C-210	\$	-	\$	-	\$	-	\$	252,817	\$	-	\$	252,817
11	PA6	Asset Management / GIS	C-210	\$	-	\$	-	\$	-	\$	178,815	\$	-	\$	178,815
12	PA6	Work Management (Maximo)	C-210	\$	-	\$	-	\$	-	\$	196,713	\$	-	\$	196,713
13	PA1-3	Customer Engagement	C-175	\$	1,503,393	\$	-	\$	1,503,393	\$	816,685	\$	-	\$	816,685
14	PA4	Customer Engagement	C-175	\$	373,046	\$	-	\$	373,046	\$	202,649	\$	-	\$	202,649
15	PA1-3	WM-SDM	C-175	\$	1,474,178	\$	-	\$	1,474,178	\$	800,814	\$	-	\$	800,814
16	PA4	WM-SDM	C-210	\$	-	\$	-	\$	-	\$	532,351	\$	-	\$	532,351
17	PA5	WM-SDM	C-210	\$	-	\$	-	\$	-	\$	51,951	\$	-	\$	51,951
18	PA6	WM-SDM	C-210	\$	-	\$	-	\$	-	\$	41,739	\$	-	\$	41,739
19	PA1-3	Supply Chain	C-210	\$	-	\$	-	\$	-	\$	648,712	\$	-	\$	648,712
20	PA4	Supply Chain	C-210	\$	-	\$	-	\$	-	\$	169,471	\$	-	\$	169,471
21	PA1-3	Hardware (CapEx)	C-175	\$	345,563	\$	-	\$	345,563	\$	187,720	\$	-	\$	187,720
22	PA4	Hardware (CapEx)	C-210	\$	-	\$	-	\$	-	\$	99,384	\$	-	\$	99,384
23	PA5	Hardware (CapEx)	C-210	\$	-	\$	-	\$	-	\$	77,385	\$	-	\$	77,385
24	PA6	Hardware (CapEx)	C-210	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
25	PA1-3	PP Enhancements (CapEx)	G-012	\$	82,933	\$	-	\$	82,933	\$	28,239	\$	-	\$	28,239
Non-Cap Ex Investment															
26		Business Enablement & Change Management	C-210	\$	-	\$	-	\$	-	\$	-	\$	945,850	\$	945,850
27		Data Management	C-210	\$	-	\$	-	\$	-	\$	-	\$	100,819	\$	100,819
28		IS Enabling	C-210	\$	-	\$	-	\$	-	\$	-	\$	612,215	\$	612,215
29		Operating Model	C-210	\$	-	\$	-	\$	-	\$	-	\$	105,126	\$	105,126
30		Portfolio Office	C-210	\$	-	\$	-	\$	-	\$	-	\$	2,586,118	\$	2,586,118
31		Strategic BECM	C-210	\$	-	\$	-	\$	-	\$	-	\$	856,191	\$	856,191
32		Software	C-210	\$	-	\$	-	\$	-	\$	-	\$	1,022,092	\$	1,022,092
33		Hardware	C-210	\$	-	\$	-	\$	-	\$	-	\$	277,643	\$	277,643
34		Power Plant Enhancements	G-012	\$	-	\$	154,018	\$	154,018	\$	-	\$	52,443	\$	52,443
35		Tech Training - Labor	C-210	\$	-	\$	-	\$	-	\$	-	\$	1,455,575	\$	1,455,575
36		Data Migration	C-210	\$	-	\$	-	\$	-	\$	-	\$	52,590	\$	52,590
37		Value Assurance	C-210	\$	-	\$	-	\$	-	\$	-	\$	191,620	\$	191,620
38		Phase 1	C-210	\$	-	\$	-	\$	-	\$	-	\$	451,836	\$	451,836
39		Asset Management	C-210	\$	-	\$	-	\$	-	\$	-	\$	134,401	\$	134,401
40		Asset Management / GIS	C-210	\$	-	\$	-	\$	-	\$	-	\$	161,454	\$	161,454
41		Work Management (Maximo)	C-210	\$	-	\$	-	\$	-	\$	-	\$	475,806	\$	475,806
42		Customer Engagement	C-175	\$	-	\$	143,810	\$	143,810	\$	-	\$	78,122	\$	78,122
43		WM-SDM (PA 1-3)	C-175	\$	-	\$	400,006	\$	400,006	\$	-	\$	217,295	\$	217,295
44		WM-SDM (PA 4-6)	C-210	\$	-	\$	-	\$	-	\$	-	\$	163,341	\$	163,341
45		Supply Chain	C-210	\$	-	\$	-	\$	-	\$	-	\$	212,813	\$	212,813
46		FY17 Non-CapEx Investment	G-210	\$	-	\$	-	\$	-	\$	-	\$	1,492,545	\$	1,492,545
47		Totals		\$	3,779,113	\$	697,834	\$	4,476,947	\$	21,284,344	\$	11,645,896	\$	32,930,239
Fiscal Year 2018 Bill Pool Allocators								RI Electric			RI Gas				
All US Electric and Gas Distribution Companies--Number of Customers			C-175				6.94%			3.77%					
All US Gas Distribution Companies--Number of Customers			C-210				0.00%			7.37%					
All US Electric and Gas Distribution Companies--General 3-Point Allocator (1)			G-012				8.37%			2.85%					

- (1) 3-Point Allocator is based on weighting of each company's (1) Net Plant,  
(2) Net Margin & (3) Net Operations & Maintenance Expense

# Attachment DIV 1-1-2

## GBE Quarterly Report - Third Quarter Ended May 31, 2019

THE NARRAGANSETT ELECTRIC COMPANY  
d/b/a NATIONAL GRID  
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The Narragansett Electric Company  
Gas Business Enablement  
Total forecasted GBE Program spend by jurisdiction

				MA-Gas Share			MA-Electric Share		
Line	Portfolio Anchor	Workstream	Allocation Code	CapEx	Non-CapEx	Total MA Gas	CapEx	Non-CapEx	Total MA Electric
Cap Ex Investment									
1	PA1-3	Asset Management	C-210	\$ 6,862,927	\$ -	\$ 6,862,927	\$ -	\$ -	\$ -
2	PA1-3	Asset Management / GIS	C-210	\$ 14,125,267	\$ -	\$ 14,125,267	\$ -	\$ -	\$ -
3	PA1-3	Work Management (Maximo)	C-210	\$ 19,245,065	\$ -	\$ 19,245,065	\$ -	\$ -	\$ -
4	PA4	Asset Management	C-210	\$ 2,769,641	\$ -	\$ 2,769,641	\$ -	\$ -	\$ -
5	PA4	Asset Management / GIS	C-210	\$ 2,868,336	\$ -	\$ 2,868,336	\$ -	\$ -	\$ -
6	PA4	Work Management (Maximo)	C-210	\$ 5,730,290	\$ -	\$ 5,730,290	\$ -	\$ -	\$ -
7	PA5	Asset Management	C-210	\$ 1,866,376	\$ -	\$ 1,866,376	\$ -	\$ -	\$ -
8	PA5	Asset Management / GIS	C-210	\$ 1,412,406	\$ -	\$ 1,412,406	\$ -	\$ -	\$ -
9	PA5	Work Management (Maximo)	C-210	\$ 2,182,484	\$ -	\$ 2,182,484	\$ -	\$ -	\$ -
10	PA6	Asset Management	C-210	\$ 848,670	\$ -	\$ 848,670	\$ -	\$ -	\$ -
11	PA6	Asset Management / GIS	C-210	\$ 600,257	\$ -	\$ 600,257	\$ -	\$ -	\$ -
12	PA6	Work Management (Maximo)	C-210	\$ 660,336	\$ -	\$ 660,336	\$ -	\$ -	\$ -
13	PA1-3	Customer Engagement	C-175	\$ 2,742,500	\$ -	\$ 2,742,500	\$ 4,029,266	\$ -	\$ 4,029,266
14	PA4	Customer Engagement	C-175	\$ 680,514	\$ -	\$ 680,514	\$ 999,807	\$ -	\$ 999,807
15	PA1-3	WM-SDM	C-175	\$ 2,689,206	\$ -	\$ 2,689,206	\$ 3,950,966	\$ -	\$ 3,950,966
16	PA4	WM-SDM	C-210	\$ 1,787,022	\$ -	\$ 1,787,022	\$ -	\$ -	\$ -
17	PA5	WM-SDM	C-210	\$ 174,391	\$ -	\$ 174,391	\$ -	\$ -	\$ -
18	PA6	WM-SDM	C-210	\$ 140,110	\$ -	\$ 140,110	\$ -	\$ -	\$ -
19	PA1-3	Supply Chain	C-210	\$ 2,177,632	\$ -	\$ 2,177,632	\$ -	\$ -	\$ -
20	PA4	Supply Chain	C-210	\$ 568,888	\$ -	\$ 568,888	\$ -	\$ -	\$ -
21	PA1-3	Hardware (CapEx)	C-175	\$ 630,379	\$ -	\$ 630,379	\$ 926,150	\$ -	\$ 926,150
22	PA4	Hardware (CapEx)	C-210	\$ 333,619	\$ -	\$ 333,619	\$ -	\$ -	\$ -
23	PA5	Hardware (CapEx)	C-210	\$ 259,770	\$ -	\$ 259,770	\$ -	\$ -	\$ -
24	PA6	Hardware (CapEx)	C-210	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
25	PA1-3	PP Enhancements (CapEx)	G-012	\$ 109,685	\$ -	\$ 109,685	\$ 202,724	\$ -	\$ 202,724
Non-Cap Ex Investment									
26		Business Enablement & Change Management	C-210	\$ -	\$ 3,175,080	\$ 3,175,080	\$ -	\$ -	\$ -
27		Data Management	C-210	\$ -	\$ 338,435	\$ 338,435	\$ -	\$ -	\$ -
28		IS Enabling	C-210	\$ -	\$ 2,055,114	\$ 2,055,114	\$ -	\$ -	\$ -
29		Operating Model	C-210	\$ -	\$ 352,893	\$ 352,893	\$ -	\$ -	\$ -
30		Portfolio Office	C-210	\$ -	\$ 8,681,217	\$ 8,681,217	\$ -	\$ -	\$ -
31		Strategic BECM	C-210	\$ -	\$ 2,874,107	\$ 2,874,107	\$ -	\$ -	\$ -
32		Software	C-210	\$ -	\$ 3,431,011	\$ 3,431,011	\$ -	\$ -	\$ -
33		Hardware	C-210	\$ -	\$ 932,005	\$ 932,005	\$ -	\$ -	\$ -
34		Power Plant Enhancements	G-012	\$ -	\$ 203,701	\$ 203,701	\$ -	\$ 376,488	\$ 376,488
35		Tech Training - Labor	C-210	\$ -	\$ 4,886,150	\$ 4,886,150	\$ -	\$ -	\$ -
36		Data Migration	C-210	\$ -	\$ 176,538	\$ 176,538	\$ -	\$ -	\$ -
37		Value Assurance	C-210	\$ -	\$ 643,240	\$ 643,240	\$ -	\$ -	\$ -
38		Phase 1	C-210	\$ -	\$ 1,516,747	\$ 1,516,747	\$ -	\$ -	\$ -
39		Asset Management	C-210	\$ -	\$ 451,165	\$ 451,165	\$ -	\$ -	\$ -
40		Asset Management / GIS	C-210	\$ -	\$ 541,979	\$ 541,979	\$ -	\$ -	\$ -
41		Work Management (Maximo)	C-210	\$ -	\$ 1,597,211	\$ 1,597,211	\$ -	\$ -	\$ -
42		Customer Engagement	C-175	\$ -	\$ 262,339	\$ 262,339	\$ -	\$ 385,427	\$ 385,427
43		WM-SDM (PA 1-3)	C-175	\$ -	\$ 729,695	\$ 729,695	\$ -	\$ 1,072,063	\$ 1,072,063
44		WM-SDM (PA 4-6)	C-210	\$ -	\$ 548,312	\$ 548,312	\$ -	\$ -	\$ -
45		Supply Chain	C-210	\$ -	\$ 714,382	\$ 714,382	\$ -	\$ -	\$ -
46		FY17 Non-CapEx Investment	G-210	\$ -	\$ 5,740,557	\$ 5,740,557	\$ -	\$ -	\$ -
47		Totals		\$ 71,465,771	\$ 39,851,877	\$ 111,317,648	\$ 10,108,913	\$ 1,833,979	\$ 11,942,892

### Fiscal Year 2018 Bill Pool Allocators

All US Electric and Gas Distribution Companies--Number of Customers	C-175	MA Gas	MA Electric
All US Gas Distribution Companies--Number of Customers	C-210	12.66%	18.60%
All US Electric and Gas Distribution Companies--General 3-Point Allocator (1)	G-012	24.74%	0.00%
		11.07%	20.46%

- (1) 3-Point Allocator is based on weighting of each company's (1) Net Plant,  
(2) Net Margin & (3) Net Operations & Maintenance Expense

# Attachment DIV 1-1-2

## GBE Quarterly Report - Third Quarter Ended May 31, 2019

THE NARRAGANSETT ELECTRIC COMPANY  
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The Narragansett Electric Company  
Gas Business Enablement  
Total forecasted GBE Program spend by jurisdiction

			NY-Electric Share				NY-Gas Share		
Line	Portfolio Anchor	Workstream	Allocation Code	CapEx	Non-CapEx	Total NY Electric	CapEx	Non-CapEx	Total NY Gas
Cap Ex Investment									
1	PA1-3	Asset Management	C-210	\$ -	\$ -	\$ -	\$ 18,832,825	\$ -	\$ 18,832,825
2	PA1-3	Asset Management / GIS	C-210	\$ -	\$ -	\$ -	\$ 38,761,696	\$ -	\$ 38,761,696
3	PA1-3	Work Management (Maximo)	C-210	\$ -	\$ -	\$ -	\$ 52,811,135	\$ -	\$ 52,811,135
4	PA4	Asset Management	C-210	\$ -	\$ -	\$ -	\$ 7,600,280	\$ -	\$ 7,600,280
5	PA4	Asset Management / GIS	C-210	\$ -	\$ -	\$ -	\$ 7,871,112	\$ -	\$ 7,871,112
6	PA4	Work Management (Maximo)	C-210	\$ -	\$ -	\$ -	\$ 15,724,712	\$ -	\$ 15,724,712
7	PA5	Asset Management	C-210	\$ -	\$ -	\$ -	\$ 5,121,596	\$ -	\$ 5,121,596
8	PA5	Asset Management / GIS	C-210	\$ -	\$ -	\$ -	\$ 3,875,839	\$ -	\$ 3,875,839
9	PA5	Work Management (Maximo)	C-210	\$ -	\$ -	\$ -	\$ 5,989,040	\$ -	\$ 5,989,040
10	PA6	Asset Management	C-210	\$ -	\$ -	\$ -	\$ 2,328,867	\$ -	\$ 2,328,867
11	PA6	Asset Management / GIS	C-210	\$ -	\$ -	\$ -	\$ 1,647,188	\$ -	\$ 1,647,188
12	PA6	Work Management (Maximo)	C-210	\$ -	\$ -	\$ -	\$ 1,812,055	\$ -	\$ 1,812,055
13	PA1-3	Customer Engagement	C-175	\$ 5,043,081	\$ -	\$ 5,043,081	\$ 7,527,795	\$ -	\$ 7,527,795
14	PA4	Customer Engagement	C-175	\$ 1,251,371	\$ -	\$ 1,251,371	\$ 1,867,919	\$ -	\$ 1,867,919
15	PA1-3	WM-SDM	C-175	\$ 4,945,080	\$ -	\$ 4,945,080	\$ 7,381,508	\$ -	\$ 7,381,508
16	PA4	WM-SDM	C-210	\$ -	\$ -	\$ -	\$ 4,903,837	\$ -	\$ 4,903,837
17	PA5	WM-SDM	C-210	\$ -	\$ -	\$ -	\$ 478,554	\$ -	\$ 478,554
18	PA6	WM-SDM	C-210	\$ -	\$ -	\$ -	\$ 384,481	\$ -	\$ 384,481
19	PA1-3	Supply Chain	C-210	\$ -	\$ -	\$ -	\$ 5,975,724	\$ -	\$ 5,975,724
20	PA4	Supply Chain	C-210	\$ -	\$ -	\$ -	\$ 1,561,109	\$ -	\$ 1,561,109
21	PA1-3	Hardware (CapEx)	C-175	\$ 1,159,181	\$ -	\$ 1,159,181	\$ 1,730,307	\$ -	\$ 1,730,307
22	PA4	Hardware (CapEx)	C-210	\$ -	\$ -	\$ -	\$ 915,497	\$ -	\$ 915,497
23	PA5	Hardware (CapEx)	C-210	\$ -	\$ -	\$ -	\$ 712,845	\$ -	\$ 712,845
24	PA6	Hardware (CapEx)	C-210	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
25	PA1-3	PP Enhancements (CapEx)	G-012	\$ 211,147	\$ -	\$ 211,147	\$ 254,050	\$ -	\$ 254,050
Non-Cap Ex Investment									
26		Business Enablement & Change Management	C-210	\$ -	\$ -	\$ -	\$ -	\$ 8,712,860	\$ 8,712,860
27		Data Management	C-210	\$ -	\$ -	\$ -	\$ -	\$ 928,713	\$ 928,713
28		IS Enabling	C-210	\$ -	\$ -	\$ -	\$ -	\$ 5,639,517	\$ 5,639,517
29		Operating Model	C-210	\$ -	\$ -	\$ -	\$ -	\$ 968,386	\$ 968,386
30		Portfolio Office	C-210	\$ -	\$ -	\$ -	\$ -	\$ 23,822,467	\$ 23,822,467
31		Strategic BECM	C-210	\$ -	\$ -	\$ -	\$ -	\$ 7,886,950	\$ 7,886,950
32		Software	C-210	\$ -	\$ -	\$ -	\$ -	\$ 9,415,170	\$ 9,415,170
33		Hardware	C-210	\$ -	\$ -	\$ -	\$ -	\$ 2,557,552	\$ 2,557,552
34		Power Plant Enhancements	G-012	\$ -	\$ 392,129	\$ 392,129	\$ -	\$ 471,806	\$ 471,806
35		Tech Training - Labor	C-210	\$ -	\$ -	\$ -	\$ -	\$ 13,408,275	\$ 13,408,275
36		Data Migration	C-210	\$ -	\$ -	\$ -	\$ -	\$ 484,445	\$ 484,445
37		Value Assurance	C-210	\$ -	\$ -	\$ -	\$ -	\$ 1,765,140	\$ 1,765,140
38		Phase 1	C-210	\$ -	\$ -	\$ -	\$ -	\$ 4,162,163	\$ 4,162,163
39		Asset Management	C-210	\$ -	\$ -	\$ -	\$ -	\$ 1,238,058	\$ 1,238,058
40		Asset Management / GIS	C-210	\$ -	\$ -	\$ -	\$ -	\$ 1,487,265	\$ 1,487,265
41		Work Management (Maximo)	C-210	\$ -	\$ -	\$ -	\$ -	\$ 4,382,970	\$ 4,382,970
42		Customer Engagement	C-175	\$ -	\$ 482,405	\$ 482,405	\$ -	\$ 720,086	\$ 720,086
43		WM-SDM (PA 1-3)	C-175	\$ -	\$ 1,341,808	\$ 1,341,808	\$ -	\$ 2,002,914	\$ 2,002,914
44		WM-SDM (PA 4-6)	C-210	\$ -	\$ -	\$ -	\$ -	\$ 1,504,644	\$ 1,504,644
45		Supply Chain	C-210	\$ -	\$ -	\$ -	\$ -	\$ 1,960,364	\$ 1,960,364
46		FY17 Non-CapEx Investment	G-210	\$ -	\$ -	\$ -	\$ -	\$ 12,909,205	\$ 12,909,205
47		Totals		\$ 12,609,860	\$ 2,216,343	\$ 14,826,203	\$ 196,069,971	\$ 106,428,952	\$ 302,498,923
Fiscal Year 2018 Bill Pool Allocators						NY Electric	NY Gas		
All US Electric and Gas Distribution Companies--Number of Customers			C-175			23.28%	34.75%		
All US Gas Distribution Companies--Number of Customers			C-210			0.00%	67.89%		
All US Electric and Gas Distribution Companies--General 3-Point Allocator (1)			G-012			21.31%	25.64%		

(1) 3-Point Allocator is based on weighting of each company's (1) Net Plant,  
(2) Net Margin & (3) Net Operations & Maintenance Expense

# Attachment DIV 1-1-2

## GBE Quarterly Report - Third Quarter Ended May 31, 2019

THE NARRAGANSETT ELECTRIC COMPANY  
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The Narragansett Electric Company  
Gas Business Enablement  
Total forecasted GBE Program spend by jurisdiction

Line	Portfolio		Allocation Code	Allocation	
	Anchor	Workstream		NGUSA Parent Co.	Total GBE
<b>Cap Ex Investment</b>					
1	PA1-3	Asset Management	C-210	\$ -	\$ 27,740,204
2	PA1-3	Asset Management / GIS	C-210	\$ -	\$ 57,094,854
3	PA1-3	Work Management (Maximo)	C-210	\$ -	\$ 77,789,270
4	PA4	Asset Management	C-210	\$ -	\$ 11,194,992
5	PA4	Asset Management / GIS	C-210	\$ -	\$ 11,593,919
6	PA4	Work Management (Maximo)	C-210	\$ -	\$ 23,162,044
7	PA5	Asset Management	C-210	\$ -	\$ 7,543,962
8	PA5	Asset Management / GIS	C-210	\$ -	\$ 5,708,998
9	PA5	Work Management (Maximo)	C-210	\$ -	\$ 8,821,682
10	PA6	Asset Management	C-210	\$ -	\$ 3,430,354
11	PA6	Asset Management / GIS	C-210	\$ -	\$ 2,426,260
12	PA6	Work Management (Maximo)	C-210	\$ -	\$ 2,669,104
13	PA1-3	Customer Engagement	C-175	\$ -	\$ 21,662,720
14	PA4	Customer Engagement	C-175	\$ -	\$ 5,375,307
15	PA1-3	WM-SDM	C-175	\$ -	\$ 21,241,751
16	PA4	WM-SDM	C-210	\$ -	\$ 7,223,210
17	PA5	WM-SDM	C-210	\$ -	\$ 704,896
18	PA6	WM-SDM	C-210	\$ -	\$ 566,330
19	PA1-3	Supply Chain	C-210	\$ -	\$ 8,802,068
20	PA4	Supply Chain	C-210	\$ -	\$ 2,299,468
21	PA1-3	Hardware (CapEx)	C-175	\$ -	\$ 4,979,300
22	PA4	Hardware (CapEx)	C-210	\$ -	\$ 1,348,500
23	PA5	Hardware (CapEx)	C-210	\$ -	\$ 1,050,000
24	PA6	Hardware (CapEx)	C-210	\$ -	\$ -
25	PA1-3	PP Enhancements (CapEx)	G-012	\$ 102,056	\$ 990,833
<b>Non-Cap Ex Investment</b>					
26		Business Enablement & Change Management	C-210	\$ -	\$ 12,833,790
27		Data Management	C-210	\$ -	\$ 1,367,967
28		IS Enabling	C-210	\$ -	\$ 8,306,845
29		Operating Model	C-210	\$ -	\$ 1,426,405
30		Portfolio Office	C-210	\$ -	\$ 35,089,803
31		Strategic BECM	C-210	\$ -	\$ 11,617,248
32		Software	C-210	\$ -	\$ 13,868,273
33		Hardware	C-210	\$ -	\$ 3,767,200
34		Power Plant Enhancements	G-012	\$ 189,532	\$ 1,840,119
35		Tech Training - Labor	C-210	\$ -	\$ 19,750,000
36		Data Migration	C-210	\$ -	\$ 713,574
37		Value Assurance	C-210	\$ -	\$ 2,600,000
38		Phase I	C-210	\$ -	\$ 6,130,746
39		Asset Management	C-210	\$ -	\$ 1,823,624
40		Asset Management / GIS	C-210	\$ -	\$ 2,190,698
41		Work Management (Maximo)	C-210	\$ -	\$ 6,455,987
42		Customer Engagement	C-175	\$ -	\$ 2,072,189
43		WM-SDM (PA 1-3)	C-175	\$ -	\$ 5,763,782
44		WM-SDM (PA 4-6)	C-210	\$ -	\$ 2,216,297
45		Supply Chain	C-210	\$ -	\$ 2,887,559
46		FY17 Non-CapEx Investment	G-210	\$ -	\$ 20,142,307
47		Totals		\$ 291,588	\$ 478,284,441

### Fiscal Year 2018 Bill Pool Allocators

All US Electric and Gas Distribution Companies--Number of Customers	C-175	Parent/Non Regulated
All US Gas Distribution Companies--Number of Customers	C-210	
All US Electric and Gas Distribution Companies--General 3-Point Allocator (1)	G-012	10.30%

- (1) 3-Point Allocator is based on weighting of each company's (1) Net Plant,  
(2) Net Margin & (3) Net Operations & Maintenance Expense

# Attachment DIV 1-1-2

## GBE Quarterly Report - Third Quarter Ended May 31, 2019

THE NARRAGANSETT ELECTRIC COMPANY  
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The Narragansett Electric Company  
Gas Business Enablement  
Key Project Implementation Dates

Line	Portfolio Anchor	Workstream	RI-Electric	RI-Gas	MA	NMPC	KEDNY	KEDLI
		<b>Cap Ex Investment</b>						
1	PA1-3	Asset Management	Oct-18	Oct-18	Jan-19	Apr-19	Jul-19	Oct-19
2	PA1-3	Asset Management / GIS	Oct-18	Oct-18	Jan-19	Apr-19	Jul-19	Oct-19
3	PA1-3	Work Management (Maximo)	Mar-18	Mar-18	Jan-19	Apr-19	Jul-19	Oct-19
4	PA4	Asset Management	Apr-20	Apr-20	Jun-20	Apr-19	Jul-19	Oct-19
5	PA4	Asset Management / GIS	Apr-20	Apr-20	Jun-20	Jul-20	Aug-20	Sep-20
6	PA4	Work Management (Maximo)	Apr-20	Apr-20	Jun-20	Jul-20	Aug-20	Sep-20
7	PA5	Asset Management	Apr-21	Apr-21	Apr-21	Apr-21	Apr-21	Apr-21
8	PA5	Asset Management / GIS	Apr-21	Apr-21	Apr-21	Apr-21	Apr-21	Apr-21
9	PA5	Work Management (Maximo)	Apr-21	Apr-21	Apr-21	Apr-21	Apr-21	Apr-21
10	PA6	Asset Management	Jul-21	Jul-21	Jul-21	Jul-21	Jul-21	Jul-21
11	PA6	Asset Management / GIS	Jul-21	Jul-21	Jul-21	Jul-21	Jul-21	Jul-21
12	PA6	Work Management (Maximo)	Jul-21	Jul-21	Jul-21	Jul-21	Jul-21	Jul-21
13	PA1-3	Customer Engagement	Oct-18	Oct-18	Jan-19	Apr-19	Jul-19	Oct-19
14	PA4	Customer Engagement	Apr-20	Apr-20	Jun-20	Jul-20	Aug-20	Sep-20
15	PA1-3	WM-SDM	Oct-18	Oct-18	Jan-19	Apr-19	Jul-19	Oct-19
16	PA4	WM-SDM	Apr-20	Apr-20	Jun-20	Jul-20	Aug-20	Sep-20
17	PA5	WM-SDM	Apr-21	Apr-21	Apr-21	Apr-21	Apr-21	Apr-21
18	PA6	WM-SDM	Jul-21	Jul-21	Jul-21	Jul-21	Jul-21	Jul-21
19	PA1-3	Supply Chain	Oct-18	Oct-18	Jan-19	Apr-19	Jul-19	Oct-19
20	PA4	Supply Chain	Apr-20	Apr-20	Jun-20	Jul-20	Aug-20	Sep-20
21	PA1-3	Hardware (CapEx)	Oct-18	Oct-18	Jan-19	Apr-19	Jul-19	Oct-19
22	PA4	Hardware (CapEx)	Apr-20	Apr-20	Jun-20	Jul-20	Aug-20	Sep-20
23	PA5	Hardware (CapEx)	Apr-21	Apr-21	Apr-21	Apr-21	Apr-21	Apr-21
24	PA6	Hardware (CapEx)	Jul-21	Jul-21	Jul-21	Jul-21	Jul-21	Jul-21
25	PA1-3	PP Enhancements (CapEx)	Aug-17	Aug-17	Aug-17	Aug-17	Aug-17	Aug-17

# Attachment DIV 1-1-2

## GBE Quarterly Report - Third Quarter Ended May 31, 2019

THE NARRAGANSETT ELECTRIC COMPANY  
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The Narragansett Electric Company  
Gas Business Enablement  
Service Company Allocation Codes Utilized

### Allocation Codes

All US Electric and Gas Distribution Companies--Number of Customers	C-175
All US Gas Distribution Companies--Number of Customers	C-210
All US Electric and Gas Distribution Companies--General 3-Point Allocator (1)	G-012
All US Gas Distribution Companies--General 3-Point Allocator (1)	G-210

(1) 3-Point Allocator is based on weighting of each companies' (1) Net Plant, (2) Net Margin and  
(3) Net Operations & Maintenance Expense

Fiscal Year 2018 Allocation Percentages	<u>C-175</u>	<u>C-210</u>	<u>G-012</u>
RIELEC	6.94%	0.00%	8.37%
RIGAS	3.77%	7.37%	2.85%
<b>RI</b>	<b>10.71%</b>	<b>7.37%</b>	<b>11.22%</b>
BOS	9.80%	19.15%	9.03%
COL	2.86%	5.59%	2.04%
MECO/NANT	18.60%	0.00%	20.46%
<b>MA</b>	<b>31.26%</b>	<b>24.74%</b>	<b>31.53%</b>
NMPC - Elec	23.28%	0.00%	21.31%
NMPC - Gas	8.67%	16.93%	4.75%
KEDNY	17.83%	34.83%	12.38%
KEDLI	8.25%	16.13%	8.51%
<b>NY</b>	<b>58.03%</b>	<b>67.89%</b>	<b>46.95%</b>
<b>Parent/Non Regulated Companies</b>			<b>10.30%</b>
	100.00%	100.00%	100.00%
Fiscal Year 2017 Allocation Percentages		<u>G-210</u>	
RIELEC		0.00%	
RIGAS		7.41%	
<b>RI</b>		<b>7.41%</b>	
BOS		23.29%	
COL		5.21%	28.50%
MECO/NANT		0.00%	
<b>MA</b>		<b>28.50%</b>	
NMPC		12.44%	
KEDNY		30.10%	
KEDLI		21.55%	
<b>NY</b>		<b>64.09%</b>	
		100.00%	



The Narragansett Electric Company  
d/b/a National Grid  
RIPUC Docket No. 4770  
Gas Business Enablement Program Quarterly Report  
Rate Year 1 - Third Quarter Ended May 31, 2019  
Responses to the Division's First Set of Data Requests  
Issued on July 31, 2019

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Division 1-2

Request:

Please explain how the Company developed the contingency of \$61 million.

Response:

The amount of \$61 million was developed during the strategic assessment phase of the program by Accenture, the consulting partner supporting the work, as a contingency in the event of unforeseen scope changes, changing market conditions affecting vendor and procurement costs, and unanticipated program complexity. Based on Accenture's experience with clients on programs of similar sizes and complexities, they recommended establishing a contingency amount based on 20 percent of total anticipated program labor costs (CAPEX and OPEX). This resulted in the \$61 million contingency based on Fiscal Year (FY) 2018 to FY 2023 Gas Business Enablement total projected spend at the time of \$458 million (approximately \$305 million projected CAPEX and OPEX labor spend). This is equivalent to 13.32 percent of the total spend as referenced in the sanction papers that are provided as Attachment DIV 1-3-1 and Attachment DIV 1-3-2 with the Company's response to Division 1-3.

The Narragansett Electric Company  
d/b/a National Grid  
RIPUC Docket No. 4770  
Gas Business Enablement Program Quarterly Report  
Rate Year 1 - Third Quarter Ended May 31, 2019  
Responses to the Division's First Set of Data Requests  
Issued on July 31, 2019

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Division 1-3

Request:

Please provide a copy of the applicable sanctioning documents that addressed the contingency of \$61 million, as referenced in Section V. of the Third Quarter Report.

Response:

Please see Attachment DIV 1-3-1 and Attachment DIV 1-3-2 for the applicable Gas Business Enablement Program sanction papers that addressed the contingency of \$61 million. Attachment DIV 1-3-1 represents sanction paper No. USSC-17-222 v2, which was approved by National Grid's US Senior Executive Sanctioning Committee in September 2017 for planned activities for Fiscal Year (FY) 2019. A copy of this sanction paper was filed previously with the Public Utilities Commission in Docket No. 4770 as Attachment DIV 3-53-3 with the Company's response to Division 3-53. Attachment DIV 1-3-2 represents the latest sanction paper No. USSC-17-222 v3, which was approved by National Grid's US Senior Executive Sanctioning Committee in April 2019 for planned activities for FY 2020.



**US Sanction Paper**

<b>Title:</b>	Gas Business Enablement	<b>Sanction Paper #:</b>	USSC-17-222 v2
<b>Project #:</b>	INVP 4572	<b>Sanction Type:</b>	Partial Sanction
<b>Operating Company:</b>	National Grid Svc Company	<b>Date of Request:</b>	September 25, 2017
<b>Author:</b>	Wayne S. Watkins / Kenneth C. Healy	<b>Sponsor:</b>	Johnny Johnston-SVP Gas Business Enablement
<b>Utility Service:</b>	Gas	<b>Project Manager:</b>	Kenneth C. Healy

**1 Executive Summary**

**1.1 Sanctioning Summary**

This paper requests the second of five planned partial sanctions of INVP 4572 for Gas Business Enablement (GBE). This paper requests partial sanction in the amount of \$253.3 million (note that this amount includes the previous partial sanction of \$84.5 million in May 2017), with a tolerance of +/- 10% for the purposes of completing the planned activities during the period April 2018 through March 2019 (FY19). The partial funding approach will provide transparency of progress as the program moves through its various stages. This request is consistent with the originally proposed roadmap and total GBE investment of \$478.282 million.

The partial sanction amount for FY19 is \$253.3 million broken down into:

\$169.9 million Capex  
\$83.4 million Opex  
\$0 Removal

NOTE the total anticipated investment in GBE is \$478.282 million with a tolerance of +/- 13%, contingent upon submittal and approval of additional program partial sanction papers as new phases of the program are presented. The total anticipated investment includes \$20.142 million that was invested in FY17 and \$84.5 million that was sanctioned for investment in FY18. The \$168.7 million for FY19 is not a standalone investment; future investments will be required to complete GBE and enable further capabilities along a five-year roadmap from the initial investments.

NOTE that the GBE Program has adopted an annual sanctioning approach, which will include periodic reviews of project progress, deliverables, and funding requirements over multiple sanctions, with the GBE Steering Group providing oversight of the program's progress.

NOTE that the Company is seeking recovery of GBE costs in the rate cases filed in April 2017 in New York and in anticipated rate case filings in November 2017 in



## **US Sanction Paper**

Massachusetts and Rhode Island. Should there not be full support for the GBE Program, then the plans for FY19 and beyond will need to be re-assessed. The GBE team will work with the GBE Steering Committee to realign the plan to address any constraints and return to the SESC as necessary. It is proposed to return to the SESC in March 2018 to update the committee on progress and plans for FY19.

### **1.2 Project Summary**

Gas Business Enablement (GBE) is a multi-year transformation that was designed to address a number of challenges facing the US Gas Business including: the need to improve gas safety performance; continuing to successfully deliver the growing capital program; meeting the demand for customer connections; supporting evolving customer and regulatory expectations; and running the business more effectively. These challenges were amplified by the complexity created by the disparate legacy processes and systems used across the business. This was particularly acute with regards to information systems, most of which were nearing end of life, and were beginning to create unacceptable risks to core operations and future growth.

GBE involves standardizing and simplifying operational processes into new enterprise wide asset management, work management, and mobility systems (the core backbone). Then adding enhanced capabilities focused on customer experience, asset and work management, and data supplements the core backbone. Included within the portfolio are activities to define and implement a refined operating model, refreshed technical field training and a value framework to embed and sustain a culture of accountability and compliance. GBE leverages industry standard solutions, an innovative release strategy, modern delivery methods, and robust governance to support the successful delivery of the desired business outcomes.

Although primarily an asset replacement program, there are a broad range of anticipated benefits including improved gas safety and operational performance, as well as enhanced customer experience and service.

GBE was originally sanctioned in May 2017 using an annual sanctioning approach starting with FY18. At this time, the full five year roadmap was endorsed. This is the second of five annual sanctioning papers and is for the activities in FY19.

FY18 activities have been progressing to schedule and budget. The program is on track to deliver the anticipated capabilities and initial Minimum Viable Products (MVPs) in Rhode Island by March 2018.



## US Sanction Paper

### 1.3 Summary of Projects

Project Number	Project Type (Elec only)	Project Title	Estimate Amount (\$M)
4572		Gas Business Enablement	478.282
Total			478.282

### 1.4 Associated Projects

N/A

### 1.5 Prior Sanctioning History

Date	Governance Body	Sanctioned Amount	Potential Project Investment	Paper Title	Sanction Type	Tolerance
May 30, 2017	SESC	\$84.5 million	\$478.282 million	Gas Business Enablement	Partial Sanction	+/- 13%

### 1.6 Next Planned Sanction Review

Date (Month/Year)	Purpose of Sanction Review
November 2018	Partial Sanction – GBE Phase 3

### 1.7 Category

Category	Reference to Mandate, Policy, NPV, or Other
<input type="radio"/> Mandatory <input checked="" type="radio"/> Policy- Driven <input type="radio"/> Justified NPV <input type="radio"/> Other	GBE is primarily an asset replacement program.



## US Sanction Paper

### 1.8 Asset Management Risk Score

Asset Management Risk Score: 49

**Primary Risk Score Driver:** (Policy Driven Projects Only)

☒ Reliability      ☐ Environment      ☐ Health & Safety      ☐ Not Policy Driven

### 1.9 Complexity Level

☒ High Complexity      ☐ Medium Complexity      ☐ Low Complexity      ☐ N/A

Complexity Score: 30

### 1.10 Process Hazard Assessment

A Process Hazard Assessment (PHA) is required for this project:

☐ Yes      ☒ No

### 1.11 Business Plan

Business Plan Name & Period	Project included in approved Business Plan?	Over / Under Business Plan	Project Cost relative to approved Business Plan (\$)
Gas Business Enablement. FY18-FY23	<input checked="" type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Over <input type="radio"/> Under <input checked="" type="radio"/> NA	\$0.0m

### 1.12 If cost is not aligned with approved Business Plan how will this be funded?

N/A



## US Sanction Paper

### 1.13 Current Planning Horizon

\$M	Prior Yrs	Current Planning Horizon						
		Yr. 1 2017/18	Yr. 2 2018/19	Yr. 3 2019/20	Yr. 4 2020/21	Yr. 5 2021/22	Yr. 6 + 2022/23	Total
CapEx	-	59.10	110.77	83.86	46.29	14.52	0.52	315.06
OpEx	20.14	25.43	57.97	34.92	18.78	4.88	1.10	163.22
Removal	-	-	-	-	-	-	-	-
CIAC/Reimbursement	-	-	-	-	-	-	-	-
Total	20.14	84.53	168.74	118.79	65.07	19.39	1.61	478.28

Since the original sanction, the Company has completed a competitive procurement process to select the delivery vendors, which has refined the phasing of activities through fixed price contracts and has established greater certainty in the costs. The team has worked closely with plant accounting to refine the Capex/Opex splits based on the contracted work, which has driven some changes, and the remaining cost items have been reviewed and refreshed. There has been some movement of costs between Opex and Capex, but importantly, the total program costs have not increased from the original forecast of \$478.282 million, which includes the \$20.142 million pre-sanction development activities.

### 1.14 Key Milestones

Milestone	Target Date: (Month/Year)
Start Up	04/2017
Partial Sanction Phase 1	05/2017
Begin Requirements and Design	05/2017
Begin Development and Implementation	07/2017
Partial Sanction Phase 2	09/2017
Portfolio Anchor 1	03/2018
Portfolio Anchor 2	10/2018
Partial Sanction Phase 3	11/2018
Portfolio Anchor 3	10/2019
Partial Sanction Phase 4	11/2019
Portfolio Anchor 4	09/2020
Project Sanction Phase 5	11/2020
Portfolio Anchor 5	04/2021
Portfolio Anchor 6	07/2021
Project Complete	03/2022
Project Closure Sanction	07/2022

NOTE that the timelines above cover the anticipated GBE roadmap, including beyond this partial sanction. The sanctioning approach will include periodic reviews of project



## US Sanction Paper

progress, deliverables, and funding requirements over multiple sanctions. The next sanction request will occur on or before November 2018.

### 1.14 Resources, Operations and Procurement

<b>Resource Sourcing</b>			
<b>Engineering &amp; Design Resources to be provided</b>	<input checked="" type="checkbox"/> Internal	<input checked="" type="checkbox"/> Contractor	
<b>Construction/Implementation Resources to be provided</b>	<input checked="" type="checkbox"/> Internal	<input checked="" type="checkbox"/> Contractor	
<b>Resource Delivery</b>			
<b>Availability of internal resources to deliver project:</b>	<input type="radio"/> Red	<input checked="" type="radio"/> Amber	<input type="radio"/> Green
<b>Availability of external resources to deliver project:</b>	<input type="radio"/> Red	<input type="radio"/> Amber	<input checked="" type="radio"/> Green
<b>Operational Impact</b>			
<b>Outage impact on network system:</b>	<input type="radio"/> Red	<input type="radio"/> Amber	<input checked="" type="radio"/> Green
<b>Procurement Impact</b>			
<b>Procurement impact on network system:</b>	<input type="radio"/> Red	<input type="radio"/> Amber	<input checked="" type="radio"/> Green

### 1.15 Key Issues (include mitigation of Red or Amber Resources)

1	To successfully deliver a program of this scale requires a strong internal team. To date, 63 resources have been hired into the GBE team; over the next 12 months that number will grow significantly with a mix of internal, external, and consulting resources to ensure that National Grid has the required resources to complete the plans for FY19 and beyond. GBE has a dedicated HR Business Partner and recruiter to support the team in hiring these resources, and a resource plan has been developed which includes sufficient lead time to hire resources as they are needed. Availability of internal resources to deliver the program is marked amber to acknowledge the significant ramp up in resources required, although appropriate sourcing plans are in place.
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**US Sanction Paper**

**1.16 Climate Change**

Contribution to National Grid's 2050 80% emissions reduction target:	<input checked="" type="radio"/> Neutral	<input type="radio"/> Positive	<input type="radio"/> Negative
Impact on adaptability of network for future climate change:	<input checked="" type="radio"/> Neutral	<input type="radio"/> Positive	<input type="radio"/> Negative

**1.17 List References**

N/A



**US Sanction Paper**

**2 Decisions**

The Senior Executive Sanctioning Committee (SESC) at a meeting held on September 25, 2017.

- (a) APPROVED the investment of \$253.3M (note that this includes the previous partial sanction of \$84.5 million in May 2017) and a tolerance of 10% for the purposes of Gas Business Enablement in FY19.
- (b) APPROVED the potential Run the Business (RTB) impact of \$17.676M in FY22 (per annum) for an estimated 5 years. RTB impact begins in FY19 at \$7.105M and increases through FY22 to \$17.676M. Note that the RTB impact has not changed since the partial sanction in May 2017.
- (c) APPROVED the potential investment of \$478.282M and a tolerance of +/- 13% contingent upon submittal and approval of Project Sanction following continued successful delivery of the previous stages. Note that the total potential investment has not changed since the partial sanction in May 2017.
- (d) APPROVED that Johnny Johnston, Senior Vice President, on an exception basis, is delegated the authority to execute the Amended and Restated System Integration Services Agreement with PricewaterhouseCoopers Advisory Services LLC for the support of the GBE Program for the estimated term of the GBE Program.
- (e) NOTED that Johnny Johnston has the approved financial delegation to undertake the activities stated in (a).

Signature.....

Date.....

Margaret Smyth

US Chief Financial Officer

Chair, Senior Executive Sanctioning Committee

## US Sanction Paper



### 3 Sanction Paper Detail

<b>Title:</b>	Gas Business Enablement	<b>Sanction Paper #:</b>	USSC-17-222 v2
<b>Project #:</b>	INVP 4572	<b>Sanction Type:</b>	Partial Sanction
<b>Operating Company:</b>	National Grid Svc Company	<b>Date of Request:</b>	September 25, 2017
<b>Author:</b>	Wayne S. Watkins / Kenneth C. Healy	<b>Sponsor:</b>	Johnny Johnston-SVP Gas Business Enablement
<b>Utility Service:</b>	Gas	<b>Project Manager:</b>	Kenneth C. Healy

#### 3.1 **Background**

GBE was originally sanctioned in May 2017 using an annual sanctioning approach starting with FY18. At that time, the full five year roadmap was endorsed. This is the second of five annual partial sanctioning papers and is for the activities in FY19.

#### 3.2 **Drivers**

Gas Business Enablement (GBE) is a multi-year transformation that was designed to address a number of challenges facing the US Gas Business including: the need to improve gas safety performance; continuing to successfully deliver the growing capital program; meeting the demand for customer connections; supporting evolving customer and regulatory expectations; and running the business more effectively. These challenges were amplified by the complexity created by the disparate legacy processes and systems used across the business. This was particularly acute with regards to information systems, most of which were nearing end of life, and were beginning to create unacceptable risks to core operations and future growth.

#### 3.3 **Project Description**

GBE involves standardizing and simplifying operational processes into new enterprise wide asset management, work management, and mobility systems (the core backbone). Then adding enhanced capabilities focused on customer experience, asset and work management, and data supplements the core

## **US Sanction Paper**



backbone. Included within the portfolio are activities to define and implement a refined operating model, refreshed technical field training and a value framework to embed and sustain a culture of accountability and compliance. GBE leverages industry standard solutions, an innovative release strategy, modern delivery methods, and robust governance to support the successful delivery of the desired business outcomes.

The initiatives and high level roadmap can be seen in Appendices 4.2 and 4.3 respectively.

### **What is the approach to implementing GBE?**

This is a large program that will take multiple years to complete. The roadmap leverages modern approaches to minimize risk and maximize the likelihood that the desired business outcomes are successfully delivered. This includes:

- **Developing a core backbone solution and building incremental enhanced capabilities.** The core includes implementing asset management, work management and mapping solutions over the first four years, focusing on risk reduction. The enhanced capabilities build on the core and are focused on adding incremental value to National Grid's customers throughout the five-year program.
- **Phasing implementation.** The approach avoids a "big bang" implementation by breaking down the program based on work types and geography and prioritizing work types to accelerate delivery and manage risks.
- **Leveraging agile development techniques.** Traditionally, projects like this would be developed using waterfall techniques with a long cycle time between business requirements and a solution. In agile development, the business and IS teams work more collaboratively in short-cycle scrums to prioritize functionality and get to a minimum viable product (MVP). This is the simplest solution that can be implemented, with future enhancements continuously prioritized by value and added as the team learns with the solution.
- **Taking a "cloud first" approach.** Putting as much of the solution into the cloud as appropriate will provide several benefits, including faster implementation and enhancement adoption, fewer upgrades to legacy infrastructure, reduced risk of obsolescence, and the opportunity to enhance security.

Lessons from previous programs have been built into GBE from the start. National Grid's Critical Success Factors have also been embedded into the GBE



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program from the beginning. In addition, National Grid is planning to engage a value assurance partner to provide an independent assessment of program delivery.

### 3.4 Benefits Summary

The primary benefit of the GBE is reduced operational risk through the replacement of the aging information systems and processes across the organization. GBE is, therefore, primarily an asset replacement investment. This asset replacement, however, will lay the foundation for enhanced capabilities which will drive a broader range of benefits and performance improvements. Below is a partial list of those additional benefits.

- Enhanced pipeline safety and compliance performance.
- Improved customer experience and satisfaction through improved information and the creation of a customer engagement platform.
- Saving customers time by being able to offer more time bound appointments.
- Enhanced employee enablement with modern field devices.
- Advanced work and asset analytics capabilities.
- Data management capabilities.
- Improved employee technical training and skills.

National Grid estimates that there will also be a total of approximately \$40 million in quantifiable annual benefits beginning after the enhanced capabilities are fully embedded in FY24. A portion of these benefits will result in cost savings to customers. Below is a chart summarizing those savings. Further details can be seen in Appendix 4.4.

		Current Planning Horizon						Total
	Prior Yrs	Yr 1 18/19	Yr 2 19/20	Yr 3 20/21	Yr 4 21/22	Yr 5 22/23	Yr 6+ 23/24	
\$M								
Benefits	0	1.020	7.772	24.198	30.675	36.394	39.615	139.674
	0	1.020	7.772	24.198	30.675	36.394	39.615	139.674

### 3.5 Business and Customer Issues

None other than stated elsewhere in this paper.

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### ***3.6 Alternatives***

**Alternative 1:** Bring program activities to a conclusion before the end of FY18. This alternative was rejected. FY18 is a foundational year, and while basic capabilities will have been released for Rhode Island, none of the business outcomes will be delivered, and no other jurisdiction will receive any capabilities. The majority of the spend to date would need to be written off.

**Alternative 2:** De-scope the solution back to the core enterprise asset and work management systems. This is estimated to reduce the FY19 spend by \$40M to \$128.7M. This alternative was rejected. This option was originally anticipated if the program was going off track, to focus on the minimum required core work and asset solutions, but not focus on customer or broader business benefits. The program has made a good start, and the anticipated benefits still appear viable and achievable.

**Alternative 3:** Accelerate activities from FY20, FY21, and FY22 to allow the program to complete its goals more quickly. This option has not been fully costed, and was rejected. While the program has made a strong start, FY19 sees a significant ramp in activities compared to FY18, and accelerating the program at this stage places an unnecessary additional risk on the delivery of the program and its benefits.

### ***3.7 Safety, Environmental and Project Planning Issues***

N/A





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### 3.8 Execution Risk Appraisal

Number	Detailed Description of Risk / Opportunity	Probability	Impact		Score		Strategy	Pre-Trigger Mitigation Plan	Residual Risk	Post Trigger Mitigation Plan
			Cost	Schedule	Cost	Schedule				
1	Mis-alignment / lack of integration and coordination between programs	3	3	3	9	9	Avoid	Agile Delivery Methodology to be leveraged is structured to provide key checkpoints on a frequent cadence through Agile Program Increments Sessions. Additionally, the GBE Program will leverage independent third party expertise to provide insight into methodology and delivery effectiveness	Low	Agile approaches help identify most relevant solutions. Program will retain independent expertise to provide proactive feedback on the effectiveness of program integration activities
2	A large group of people will be impacted by new devices and tools. Learning curve could be steep, especially in regions that are currently only using basic system tools to complete their work. This could impact operations and slow the realization of construction work	4	3	3	12	12	Mitigate	Leverage Pilots - to build learning early; Phased implementations to manage risk and manage change; Agile development approaches to engage employees more actively in design of new practices and processes; Alignment of operating model attributes to drive accountability for desired behaviors and outcomes.	Low	Change office and ongoing organizational health metrics to diagnose organizational state
3	GBE will not be able to staff the program to peak levels with the necessary SMEs given current scope and schedule	3	3	3	9	9	Mitigate	Developing realistic resource plan for recruitment of program full-time resources and engaging HR early, Engaging business leadership on a weekly basis to provide visibility into part time Subject Matter Expert (SME) resource requirements, Robust commercial process to find partners with the ability to provide appropriate expertise as a short-term measure to fill gaps	Low	Continue proactively engaging with Business leadership to provide transparency in resource planning.

### 3.9 Permitting

N/A

### 3.10 Investment Recovery

N/A



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### 3.10.1 Investment Recovery and Regulatory Implications

Full regulatory recovery for the GBE solution is challenging within the current regulatory construct due to the phasing of spend on an enterprise solution vs. the phased timing of rate case filings for each of the affected operating companies. This is exacerbated by the non-recurring Opex spend that is challenging to recover in all jurisdictions and the comparatively short 10 year depreciation life of the assets compared to traditional gas and electric assets.

Several filing strategy scenarios were modelled. The highest recovery was 90.3%, achieved by implementing four geographic-specific GBE implementations carefully aligned to rate case filings. However, this would increase the total cost to our customers by \$292M or a 54% increase in total costs due to the loss of synergies of an enterprise solution.

The GBE team continues to work with the Steering Group, Regulation, and Finance to identify solutions by jurisdiction that provide a fair and balanced outcome for customers and the Company.

### 3.10.2 Customer Impact

Noted elsewhere in this paper.

### 3.10.3 CIAC / Reimbursement

N/A

## 3.11 Financial Impact to National Grid

### 3.11.1 Cost Summary Table

Project Number	Project Title	Project Estimate Level (%)	Spend (\$M)	Prior Yrs	Current Planning Horizon						Total
					Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 +	
4572	Gas Business Enablement	+/- 13%	CapEx	-	59.10	110.77	83.86	46.29	14.52	0.52	315.06
			OpEx	20.14	25.43	57.97	34.92	18.78	4.88	1.10	163.22
			Removal	-	-	-	-	-	-	-	-
			Total	20.14	84.53	168.74	118.79	65.07	19.39	1.61	478.28
Total Project Sanction			CapEx	-	59.10	110.77	83.86	46.29	14.52	0.52	315.06
			OpEx	20.14	25.43	57.97	34.92	18.78	4.88	1.10	163.22
			Removal	-	-	-	-	-	-	-	-
			Total	20.14	84.53	168.74	118.79	65.07	19.39	1.61	478.28





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### 3.11.2 Project Budget Summary Table

\$M	Prior Yrs (Actual)	Current Planning Horizon						Total
		Yr. 1 2017/18	Yr. 2 2018/19	Yr. 3 2019/20	Yr. 4 2020/21	Yr. 5 2021/22	Yr. 6 + 2022/23	
CapEx	-	59.10	110.77	83.86	46.29	14.52	0.52	315.06
OpEx	20.14	25.43	57.97	34.92	18.78	4.88	1.10	163.22
Removal	-	-	-	-	-	-	-	-
Total Cost in Bus. Plan	20.14	84.53	168.74	118.79	65.07	19.39	1.61	478.28

### Project Costs Per Business Plan

#### Variance (Business Plan-Project Estimate)

\$M	Prior Yrs (Actual)	Current Planning Horizon						Total
		Yr. 1 2017/18	Yr. 2 2018/19	Yr. 3 2019/20	Yr. 4 2020/21	Yr. 5 2021/22	Yr. 6 + 2022/23	
CapEx	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
OpEx	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Cost in Bus. Plan	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

### 3.11.3 Cost Assumptions

The original cost forecasts were developed using proprietary tools from an experienced consulting partner, and further validated by the National Grid program team and an experienced design assurance partner. These have been updated as actual costs have become available through procurement events and assumptions have been updated as better insight has become available.

### 3.11.4 Net Present Value / Cost Benefit Analysis

#### 3.11.4.1 NPV Summary Table

N/A

#### 3.11.4.2 NPV Assumptions and Calculations

N/A



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### **3.11.5 Additional Impacts**

N/A

### **3.12 Statements of Support**

#### **3.12.1 Supporters**

#### **3.12.2 Reviewers**

The reviewers have provided feedback on the content/language of the paper.

Function	Individual	Area
Finance	Midkiff, Felicia	Rhode Island, NES
	Collison, Mark	Massachusetts
	McNeill, Brian	New York
	Morris, Bernadette	New York
	Urban, Dennis	FERC
	Urban, Dennis	Other
Regulatory	O'Shaughnessy, John	New York Electric
	Gurry, Renee	New England Electric
	Artuso, Michael	FERC
Jurisdictional Delegate(s)	Wolf, Donald	Gas – New York
	Currie, John	Gas – New England
	Hill, Terron	Gas – FERC
Procurement	Curran, Art	All

## **4 Appendices**

### **4.1 Sanction Request Breakdown by Project**

\$M	4572
CapEx	169.878
OpEx	83.395



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Removal	
Total	253.273

Note that this includes the previous partial sanction in May 2017.

### 4.2 Initiatives List

The program work streams and the initiatives within each work stream.

## Key Initiatives



Workstreams	Initiatives
GBE Portfolio Office	
Change Management	Program Level People Strategy
Change Leadership	Organizational Change Readiness
Operating Model	Value Realization
Asset Management	Integrity Management – Corrosion and I&R
Customer Engagement	Structured Experiences
GIS	GIS Consolidation
Work Management Field Enablement	Business Architecture Design
Supply Chain	Material Traceability
Field Technical Training	Employee Competence
Data Management	Data Governance
ISE	Integration
Value Assurance	
	Stakeholder Management & Engagement
	Enablement
	Business Readiness & Sustainment
	Workforce Strategy / Labor Strategy
	Volunteer Network
	Organizational Alignment
	Operations Performance Improvement
	Organizational Structure & Design
	Governance
	Integrity Management – TAMP and DIMP
	Asset Investment Planning and Management (AIPM) – Enhancements and Integrations
	Advanced Analytics – Platform and Use Cases
	Contact Center Interaction
	Field Interaction
	Customer Interaction
	Large Commercial & Industrial, Landlord Interaction
	Supporting Through Data
	GIS Data Remediation
	Landbase Conflation
	GIS/EAM Integration
	Graphical Work Design (GWD)
	Complex Design (CAD) & Estimating (ESW)
	Corrosion and I&R
	Customer, Collections, Resource Mgmt
	CU Governance and Library
	PowerPlan Integration
	Construction Work, Leak Inspection and Leak Repair
	Projects and Program Management
	Work Forecasting & Planning Solution
	WMFE Optimization
	SC Master Data Improvements
	Fulfillment Model / Inventory Optimization
	Integrated Supply & Demand Planning / Integrated Business Planning
	Warehouse & Network Optimization
	Standard Operating Procedures
	Technology
	Data Profiling & Cleansing
	Data Quality Dashboards & DQI Metrics
	Integration & Conversion
	Advanced Analytics
	Technology Initiatives
	Enabling Capabilities

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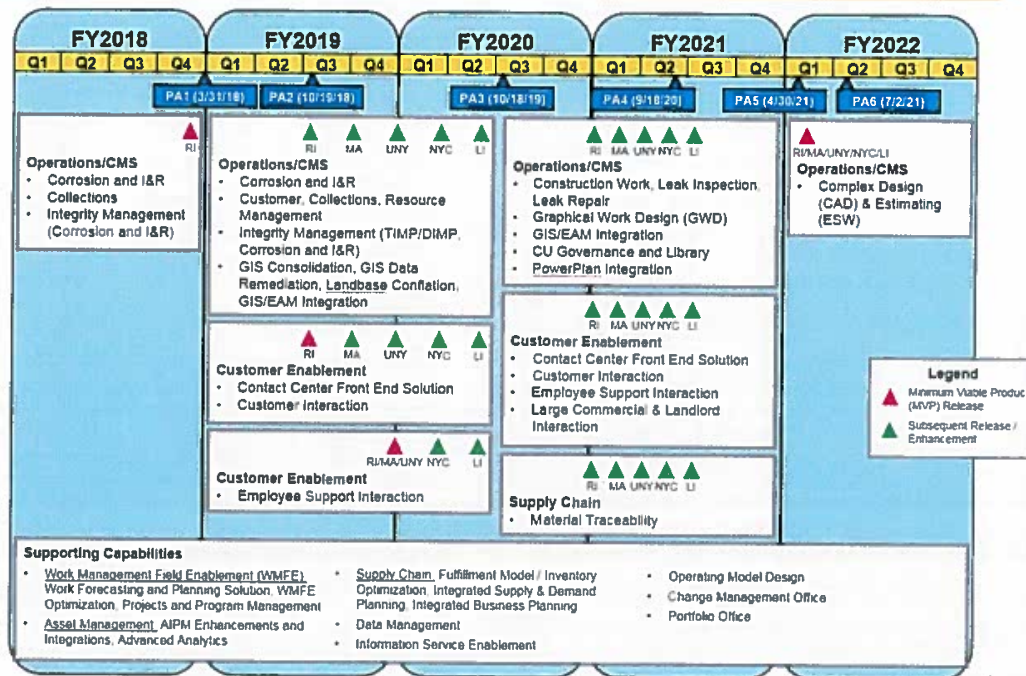


### 4.3 High Level Roadmap of Capabilities to be delivered over five years

The backbone capabilities will be delivered in just under four full years while the enhanced capabilities will be delivered over the full five-year timeframe. The bottom portion of the depiction highlights the number of users on legacy Enterprise Asset Management (EAM), Scheduling, Mobility and GIS platforms that will transition to the new platforms over time illustrating the reduction in technology risk.



## Overview of GBE Program Capabilities





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### 4.4 Benefits Detail

Breakdown of the \$40M of annual Capex and Opex benefits by category, Type 1 (direct savings) and Type 2 (measurable KPI improvements) and benefits over time:

Enhanced Capabilities	Value Drivers	Example Metrics <sup>1</sup>	Aspirational Ann. Benefit (Ms)
Strategic Change, Talent, & Operating Model	<ul style="list-style-type: none"> <li>Process efficiency</li> <li>Improved performance mgmt.</li> <li>Performance culture</li> </ul>	<ul style="list-style-type: none"> <li>Supervisor time in the field</li> <li>Quality of coaching conversations</li> </ul>	Enterprise
			N/A <sup>2</sup>
Customer Experience & Interactions	<ul style="list-style-type: none"> <li>Self-service</li> <li>New service growth</li> <li>Increased customer satisfaction</li> </ul>	<ul style="list-style-type: none"> <li>Services initiated via self-service</li> <li>Move requests completed via self-service</li> <li>Status updates received via self-service</li> <li>Service quality penalties</li> <li>Contact center call volume</li> <li>Average time per contact center call</li> </ul>	\$2.4
Asset Management	<ul style="list-style-type: none"> <li>Reduced material spend</li> <li>Reduced opex spend reduction</li> <li>Capex effectiveness</li> </ul>	<ul style="list-style-type: none"> <li>Estimating accuracy</li> <li>Mapping cycle time</li> <li>Opex spend</li> <li>Risk reduced / \$ spent</li> </ul>	\$2.8
EAM / Work Management Platform	<ul style="list-style-type: none"> <li>Appointments met / kept</li> <li>Increase Supervisor time in field</li> <li>Route optimization</li> <li>Reduced overtime</li> <li>Reduced contractor spend</li> <li>Back office productivity</li> <li>Improved operational data</li> </ul>	<ul style="list-style-type: none"> <li>Unable to complete rate</li> <li>Schedule adherence</li> <li>Jobs scheduled / dispatched automatically</li> <li># / rate of jobs bundled</li> <li>Travel time</li> <li>Available / idle time</li> <li>Pre-requisite fulfillment rate</li> <li>Summonses / other penalties</li> </ul>	\$18.4
Supply Chain	<ul style="list-style-type: none"> <li>Reduced capex project delays</li> <li>Reduced material spend</li> <li>Reduced inventory carrying costs</li> </ul>	<ul style="list-style-type: none"> <li>Material stock-outs</li> <li>Rate of jobs requiring expedite</li> <li>Inventory turnover</li> <li>Inventory carrying cost</li> </ul>	\$2.5
Field Technical Training	<ul style="list-style-type: none"> <li>Reduced compliance violations</li> <li>Reduced compliance penalties</li> </ul>	<ul style="list-style-type: none"> <li># / type compliance violations</li> <li>Penalties incurred</li> </ul>	\$13.5
			\$39.6

<sup>1</sup> Performance metrics to be defined as part of value framework in Q1 2017

<sup>2</sup> Capabilities increase likelihood of program success and enhance the probability of delivering program benefits. Benefits includes capex and opex benefits, Type 1 & Type 11





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### Detailed benefits breakdown:

Initiative Description	Benefit Description	Benefit Type	12-Months Ending March 31, 2019	12-Months Ending March 31, 2020	12-Months Ending March 31, 2021	12-Months Ending March 31, 2022	12-Months Ending March 31, 2023	12-Months Ending March 31, 2024	12-Months Ending March 31, 2025	12-Months Ending March 31, 2026	12-Months Ending March 31, 2027
Asset - Advanced Analytics	Reduction / Redirection in Opex via AIPM	Type I	\$0	\$0	\$13,750	\$1,223,750	\$1,980,000	\$1,980,000	\$1,980,000	\$1,980,000	\$1,980,000
Engineering, Design, Estimating & Mobility	Reduction in Damages due to Data Quality Errors	Type I	\$143,315	\$573,259	\$573,259	\$573,259	\$573,259	\$573,259	\$573,259	\$573,259	\$573,259
Work Management & Field Enablement	Clerical / Back Office Productivity Improvement	Type I	\$0	\$29,603	\$1,835,367	\$2,131,393	\$2,131,393	\$2,131,393	\$2,131,393	\$2,131,393	\$2,131,393
Work Management & Field Enablement	Damage Prevention - Reduced Travel Mileage	Type I	\$0	\$37,275	\$49,700	\$49,700	\$49,700	\$49,700	\$49,700	\$49,700	\$49,700
Work Management & Field Enablement	M&C Productivity Improvements - Base	Type I	\$0	\$1,024,595	\$7,274,626	\$7,377,085	\$7,377,085	\$7,377,085	\$7,377,085	\$7,377,085	\$7,377,085
Customer Interaction	Reduce Move Call Volume through Self-Service	Type II	\$0	\$0	\$0	\$0	\$642,130	\$906,536	\$906,536	\$906,536	\$906,536
Customer Interaction	Reduce Non-Move Call Volume through Self-Service	Type II	\$0	\$0	\$61,278	\$502,480	\$588,270	\$588,270	\$588,270	\$588,270	\$588,270
Data Management	Reduction in Data Cleansing / Scrubbing Effort - Analysts	Type II	\$0	\$105,749	\$750,821	\$761,396	\$761,396	\$761,396	\$761,396	\$761,396	\$761,396
Engineering, Design, Estimating & Mobility	Complex Jobs - Engineering Productivity Improvement	Type II	\$0	\$0	\$4,886	\$302,941	\$351,803	\$351,803	\$351,803	\$351,803	\$351,803
Engineering, Design, Estimating & Mobility	Complex Jobs - Estimating Accuracy Fine Avoidance	Type II	\$0	\$0	\$0	\$45,833	\$550,000	\$550,000	\$550,000	\$550,000	\$550,000
Engineering, Design, Estimating & Mobility	Reduction in Mappers via Field Data Entry	Type II	\$0	\$8,934	\$553,899	\$643,238	\$643,238	\$643,238	\$643,238	\$643,238	\$643,238
Integrated Supply & Demand Planning	Improved Project Delivery - Construction	Type II	\$0	\$35,278	\$2,187,222	\$2,540,000	\$2,540,000	\$2,540,000	\$2,540,000	\$2,540,000	\$2,540,000
Customer Interaction	Reduction in Service Quality Penalties	Type II	\$0	\$0	\$0	\$0	\$629,809	\$889,142	\$889,142	\$889,142	\$889,142
Regulatory/ Compliance	Reduced Compliance and Gas Safety Penalties	Type II	\$876,348	\$5,070,300	\$9,577,233	\$13,207,819	\$13,520,800	\$13,520,800	\$13,520,800	\$13,520,800	\$13,520,800
Work Management & Field Enablement	CMS Collections Jobs - Reduction in Mileage	Type II	\$0	\$0	\$0	\$0	\$117,384	\$165,718	\$165,718	\$165,718	\$165,718
Work Management & Field Enablement	CMS Collections Jobs - Reduction in Travel Time	Type II	\$0	\$0	\$0	\$0	\$561,142	\$792,200	\$792,200	\$792,200	\$792,200
Work Management & Field Enablement	CMS Planned Jobs - Reduction in Available Time via Autodispatch	Type II	\$0	\$202,349	\$269,798	\$269,798	\$269,798	\$269,798	\$269,798	\$269,798	\$269,798
Work Management & Field Enablement	CMS Planned Jobs - Reduction in Mileage	Type II	\$0	\$83,430	\$111,240	\$111,240	\$111,240	\$111,240	\$111,240	\$111,240	\$111,240
Work Management & Field Enablement	CMS Planned Jobs - Reduction in Travel Time	Type II	\$0	\$252,363	\$336,484	\$336,484	\$336,484	\$336,484	\$336,484	\$336,484	\$336,484
Work Management & Field Enablement	CMS Planned Jobs - Reduction in UTCs	Type II	\$0	\$38,760	\$51,680	\$51,680	\$51,680	\$51,680	\$51,680	\$51,680	\$51,680
Work Management & Field Enablement	Damage Prevention - Reduced Travel Time	Type II	\$0	\$90,007	\$120,009	\$120,009	\$120,009	\$120,009	\$120,009	\$120,009	\$120,009
Work Management & Field Enablement	Inspections - Reduced Travel Mileage	Type II	\$0	\$0	\$0	\$0	\$3,718	\$5,249	\$5,249	\$5,249	\$5,249
Work Management & Field Enablement	Inspections - Reduced Travel Time	Type II	\$0	\$0	\$0	\$0	\$19,064	\$26,914	\$26,914	\$26,914	\$26,914
Work Management & Field Enablement	M&C and CMS Jobs - Reduced Summonses	Type II	\$0	\$0	\$0	\$0	\$2,037,959	\$4,446,457	\$4,446,457	\$4,446,457	\$4,446,457
Work Management & Field Enablement	Reduction in Field Tech Communications	Type II	\$0	\$99,566	\$265,511	\$265,511	\$265,511	\$265,511	\$265,511	\$265,511	\$265,511
Work Management & Field Enablement	Reduction in Meter Verification Jobs	Type II	\$0	\$121,024	\$161,365	\$161,365	\$161,365	\$161,365	\$161,365	\$161,365	\$161,365
Total Benefits Forecasted as a result			\$1,019,663	\$7,772,492	\$24,198,128	\$30,674,982	\$36,394,237	\$39,615,248	\$39,615,248	\$39,615,248	\$39,615,248



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### 4.5 Operating Company Allocation

Allocations Based on Number of Gas Retail Customers (C-210) and Number of Electric Retail Customers (C-198)

Dollars in millions

#### Total Expenditure

Operating Company	FY18	FY19	FY20	FY21	FY22	FY23	Total
Niagara Mohawk Power Corp. - Gas	\$ 14.0	\$ 27.5	\$ 18.9	\$ 11.0	\$ 3.3	\$ 0.3	\$ 75.0
KeySpan Energy Delivery New York	\$ 28.7	\$ 56.6	\$ 38.9	\$ 22.7	\$ 6.8	\$ 0.6	\$ 154.3
KeySpan Energy Delivery Long Island	\$ 13.3	\$ 26.2	\$ 18.0	\$ 10.5	\$ 3.1	\$ 0.3	\$ 71.4
Boston Gas Company	\$ 15.8	\$ 31.1	\$ 21.4	\$ 12.5	\$ 3.7	\$ 0.3	\$ 84.8
Colonial Gas Company	\$ 4.6	\$ 9.1	\$ 6.2	\$ 3.6	\$ 1.1	\$ 0.1	\$ 24.8
Narragansett Gas Company	\$ 6.1	\$ 12.0	\$ 8.2	\$ 4.8	\$ 1.4	\$ 0.1	\$ 32.6
Niagara Mohawk Power Corp. - Electric Distr.	\$ 1.0	\$ 3.0	\$ 3.3	\$ -	\$ -	\$ -	\$ 7.3
Massachusetts Electric Company	\$ 0.8	\$ 2.3	\$ 2.6	\$ -	\$ -	\$ -	\$ 5.7
Nantucket Electric Company	\$ 0.0	\$ 0.0	\$ 0.0	\$ -	\$ -	\$ -	\$ 0.1
Narragansett Electric Company	\$ 0.3	\$ 0.9	\$ 1.0	\$ -	\$ -	\$ -	\$ 2.2
<b>Total</b>	<b>\$ 84.5</b>	<b>\$ 168.7</b>	<b>\$ 118.8</b>	<b>\$ 65.1</b>	<b>\$ 19.4</b>	<b>\$ 1.6</b>	<b>\$ 458.1</b>

#### Operational Expenditure

Operating Company	FY18	FY19	FY20	FY21	FY22	FY23	Total
Niagara Mohawk Power Corp. - Gas	\$ 4.3	\$ 9.7	\$ 5.8	\$ 3.2	\$ 0.8	\$ 0.2	\$ 24.0
KeySpan Energy Delivery New York	\$ 8.8	\$ 20.0	\$ 12.0	\$ 6.5	\$ 1.7	\$ 0.4	\$ 49.5
KeySpan Energy Delivery Long Island	\$ 4.1	\$ 9.3	\$ 5.5	\$ 3.0	\$ 0.8	\$ 0.2	\$ 22.9
Boston Gas Company	\$ 4.9	\$ 11.0	\$ 6.6	\$ 3.6	\$ 0.9	\$ 0.2	\$ 27.2
Colonial Gas Company	\$ 1.4	\$ 3.2	\$ 1.9	\$ 1.1	\$ 0.3	\$ 0.1	\$ 7.9
Narragansett Gas Company	\$ 1.9	\$ 4.2	\$ 2.5	\$ 1.4	\$ 0.4	\$ 0.1	\$ 10.5
Niagara Mohawk Power Corp. - Electric Distr.	\$ 0.0	\$ 0.2	\$ 0.2	\$ -	\$ -	\$ -	\$ 0.5
Massachusetts Electric Company	\$ 0.0	\$ 0.2	\$ 0.2	\$ -	\$ -	\$ -	\$ 0.4
Nantucket Electric Company	\$ 0.0	\$ 0.0	\$ 0.0	\$ -	\$ -	\$ -	\$ 0.0
Narragansett Electric Company	\$ 0.0	\$ 0.1	\$ 0.1	\$ -	\$ -	\$ -	\$ 0.1
<b>Total</b>	<b>\$ 35.4</b>	<b>\$ 58.0</b>	<b>\$ 34.9</b>	<b>\$ 18.8</b>	<b>\$ 4.9</b>	<b>\$ 1.1</b>	<b>\$ 143.1</b>

#### Capital Expenditure

Operating Company	FY18	FY19	FY20	FY21	FY22	FY23	Total
Niagara Mohawk Power Corp. - Gas	\$ 9.7	\$ 17.7	\$ 13.0	\$ 7.8	\$ 2.5	\$ 0.1	\$ 50.8
KeySpan Energy Delivery New York	\$ 19.9	\$ 36.5	\$ 26.8	\$ 16.1	\$ 5.1	\$ 0.2	\$ 104.5
KeySpan Energy Delivery Long Island	\$ 9.2	\$ 16.9	\$ 12.4	\$ 7.5	\$ 2.3	\$ 0.1	\$ 48.4
Boston Gas Company	\$ 10.9	\$ 20.0	\$ 14.7	\$ 8.9	\$ 2.8	\$ 0.1	\$ 57.4
Colonial Gas Company	\$ 3.2	\$ 5.9	\$ 4.3	\$ 2.6	\$ 0.8	\$ 0.0	\$ 16.8
Narragansett Gas Company	\$ 4.2	\$ 7.7	\$ 5.7	\$ 3.4	\$ 1.1	\$ 0.0	\$ 22.1
Niagara Mohawk Power Corp. - Electric Distr.	\$ 1.0	\$ 2.9	\$ 3.3	\$ -	\$ -	\$ -	\$ 7.2
Massachusetts Electric Company	\$ 0.8	\$ 2.3	\$ 2.6	\$ -	\$ -	\$ -	\$ 5.7
Nantucket Electric Company	\$ 0.0	\$ 0.0	\$ 0.0	\$ -	\$ -	\$ -	\$ 0.1
Narragansett Electric Company	\$ 0.3	\$ 0.9	\$ 1.0	\$ -	\$ -	\$ -	\$ 2.1
<b>Total</b>	<b>\$ 59.1</b>	<b>\$ 110.8</b>	<b>\$ 83.9</b>	<b>\$ 46.3</b>	<b>\$ 14.5</b>	<b>\$ 0.5</b>	<b>\$ 315.1</b>

### 4.6 NPV Summary

***US Sanction Paper***

N/A

**4.7 *Customer Outreach Plan***

N/A

**nationalgrid**





## US Sanction Paper

<b>Title:</b>	Gas Business Enablement	<b>Sanction Paper #:</b>	USCC-17-222 v3
<b>Project #:</b>	S007743, S007745, S007746, S007747, S007749 and S007752	<b>Sanction Type:</b>	Partial Sanction
<b>Operating Company:</b>	National Grid Svc Company	<b>Date of Request:</b>	April 22, 2019
<b>Author:</b>	Chris Connolly Krishna Seetharam Mark Collison	<b>Sponsor:</b>	Cordi O'Hara, Chief Operating Officer, U.S. Gas
<b>Utility Service:</b>	Gas	<b>Project Manager:</b>	Kenneth C. Healy III

## 1 Executive Summary

### 1.1 Sanctioning Summary

This paper requests the third of four planned partial sanctions of S007743, S007745, S007746, S007747, S007749 and S007752 for the Gas Business Enablement (GBE) Program. The previous sanctioning plan called for six annual sanctions; this has been reduced following the adoption of a compressed program timeline that no longer anticipates spend in FY22 or FY23.

This paper requests partial sanction in the amount of \$420.497M (note that this amount includes the previous partial sanctions of \$ \$84.470M in May 2017 and \$253.270M in September 2017), with a tolerance of +/- 2.5% ( $\$420.497M \times 2.5\% = \$10.5M$ ) of the anticipated spend during the period April 2019 through March 2020 (FY20) for the purposes of completing the planned activities in FY20. The partial funding approach provides transparency of progress as the program moves through its various stages.

NOTE that the proposed total spend on the program is now expected to be \$535.669M, an increase of \$57.387M over the spend of \$478.282M in the original GBE plan. This increase has resulted from the strategic review of the program that started late last year, and includes increased planned investments in testing and training, ~\$12.196M, adding an appropriate allowance for AFUDC, ~\$24.025M, and the net impact of compressing the program for delivery by the end of FY21 with a single systems integrator while at the same time addressing the higher than anticipated costs of integration with legacy systems, ~\$21.168M. It is estimated that ~88% of the incremental spend is capex, and that the company will recover over 90% of the capex investment in GBE over the 10 year depreciable life of the program.

*Note that the above Project No.'s are subcomponents of INVP 4572, which makes up the Gas Business Enablement Program, (GBE).*



## ***US Sanction Paper***

Program contingency is reduced to \$3.611M from \$61.0M in this update.

The partial sanction amount for FY20 is \$420.497M broken down as follows:

\$306.593M Capex  
\$113.904M Opex  
\$ 0.000 Removal

NOTE the plan now calls for a final year of spend in FY21 of \$95.032M, which will be subject to a further sanction before the start of that year in line with an annual sanctioning approach, which will include periodic reviews of project progress, deliverables, and funding requirements over multiple sanctions, with the GBE Steering Group providing oversight of the program's progress.

The spend for FY20 is not a standalone investment; future investments will be required to complete GBE and enable further capabilities along a five-year roadmap that is now due to be completed in FY21.

NOTE that in FY19 the Information Technology department agreed to reduce their capital spend by \$9M to partly offset the incremental spend in GBE resulting from the complexities of the legacy systems integrations.

NOTE that the company has filed GBE as part of its recent rate cases for Niagara Mohawk Power Corporation, The Narragansett Electric Company, Boston Gas Company and Colonial Gas Company, with commission support for the program in all three states. The company will be filing in the upcoming KEDNY & KEDLI rate cases for recovery of the investment including the increased costs within the contingency.

### ***1.2 Project Summary***

Gas Business Enablement is a multi-year transformation that was designed to address a number of challenges facing the US Gas Business including: the need to improve gas safety performance; continuing to successfully deliver the growing capital program; meeting the demand for customer connections; supporting evolving customer and regulatory expectations; and running the business more effectively. These challenges were amplified by the complexity created by the disparate legacy processes and systems used across the business. This was particularly acute with regards to information systems, most of which were nearing end of life, and were beginning to create unacceptable risks to core operations and future growth.

GBE involves standardizing and simplifying operational processes into new enterprise wide asset & work management; scheduling, dispatch & mobility; and customer engagement platforms (the core backbone). Enhanced capabilities focused on customer experience, asset and work management, and data supplement the core backbone. Included within the portfolio are activities to define and implement a refined operating model, refreshed technical field training

## US Sanction Paper



and a value framework to embed and sustain a culture of accountability and compliance. GBE leverages industry standard solutions, an innovative release strategy, modern delivery methods and robust governance to support the successful delivery of the desired business outcomes.

Although primarily an asset replacement program, there are a broad range of anticipated benefits including improved gas safety and operational performance, as well as enhanced customer experience and service.

GBE was originally sanctioned in May 2017 using an annual sanctioning approach starting with FY18. At this time, the full five year roadmap was endorsed. This is the third of four annual sanctioning papers and is for the activities in FY20. The original plan for five annual sanctions has been curtailed in line with the revised timeline which now has the program completing in FY21.

FY19 has been an important year for the program. The first release, Portfolio Anchor 1 (PA1), was delivered on schedule in April 2018 with Corrosion, Instruments and Regulation, and Collections for Rhode Island. Subsequently, there have been three additional “mini” releases to enhance the solution. The second major release, PA 2.1 was also deployed on schedule in October 2018, building upon the first release and also adding mapping (Graphic Information System) and Resource Management capabilities. The program has also gained support for investment and regulatory recovery from regulators in NY, RI and MA. FY20 is a critical year for the program as broader capabilities are deployed in the RI and NY Jurisdictions for Customer Meter Services (CMS), Scheduling & Dispatch including a leak management minimum viable product release and the construction and maintenance capabilities are developed.

### 1.3 Summary of Projects

Project Number	Project Type (Elec only)	Project Title	Estimate Amount (\$M)
S007743	Project Type	GBE Power Plan/Supply Chain	14.81
S007745	Project Type	GBE Process and Bus Requirements	222.95
S007746	Project Type	GBE - Portfolio Management	91.24
S007747	Project Type	GBE Bus Design Readiness & Deploy	64.51
S007749	Project Type	GBE Information Service	132.57
S007752	Project Type	GBE Hardware	9.60
<b>Total</b>			<b>535.67</b>

### 1.4 Associated Projects

N/A



## US Sanction Paper

### 1.5 Prior Sanctioning History

Date	Governance Body	Sanctioned Amount	Potential Project Investment	Paper Title	Sanction Type	Tolerance
September 25, 2017	SESC	\$253.3M	\$478.282M	Gas Business Enablement	Partial Sanction	+/- 13%
May 30, 2017	SESC	\$84.470M	\$478.282M	Gas Business Enablement	Partial Sanction	+/- 13%

### 1.6 Next Planned Sanction Review

February, 2020	Final Sanction for FY21 spend
----------------	-------------------------------

### 1.7 Category

Category	Reference to Mandate, Policy, NPV, or Other
<input type="radio"/> Mandatory <input type="radio"/> Policy Driven <input type="radio"/> Justified NPV <input checked="" type="radio"/> Other	<p>Gas Business Enablement (GBE) is a transformational program that addresses three key objectives:</p> <p>(1) Replace existing aged, duplicate and disparate systems that do not support business needs.</p> <p>(2) Deliver a step change in performance to improve gas safety and compliance with standardized processes, performance metrics and tools.</p> <p>(3) Provide a platform to support future growth of the business and meet evolving customer expectations for service.</p>

### 1.8 Asset Management Risk Score

Asset Management Risk Score: 49

Primary Risk Score Driver: (Policy Driven Projects Only)

☒ Reliability
☐ Environment
☐ Health & Safety
☐ Not Policy Driven



## **US Sanction Paper**

### **1.9 Complexity Level**

☒ High Complexity   ☐ Medium Complexity   ☐ Low Complexity   ☐ N/A

Complexity Score: 30

### **1.10 Process Hazard Assessment**

A Process Hazard Assessment (PHA) is required for this project:

☐ Yes   ☒ No

### **1.11 Business Plan**

Business Plan Name & Period	Project included in approved Business Plan?	Over / Under Business Plan	Project Cost relative to approved Business Plan (\$)
Gas Business Enablement. FY20-FY24	<input checked="" type="radio"/> Yes <input type="radio"/> No	<input checked="" type="radio"/> Over <input type="radio"/> Under <input type="radio"/> Neither	\$57.389M

### **1.12 If cost is not aligned with approved Business Plan how will this be funded?**

Re-allocation of funds within the portfolio has been managed and approved by Resource Planning to meet jurisdictional budgetary, statutory and regulatory requirements.

### **1.13 Current Planning Horizon**



## US Sanction Paper

\$M	Prior Yrs	Current Planning Horizon						Total
		[Actual] Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 +	
		2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	
CapEx	182.267	124.326	75.119	0.000	0.000	0.000	0.000	381.713
OpEx	88.505	45.538	19.913	0.000	0.000	0.000	0.000	153.957
Removal	-	-	-	-	-	-	-	-
CIAC/Reimbursement	-	-	-	-	-	-	-	-
Total	270.772	169.865	95.032	0.000	0.000	0.000	0.000	535.669

Since the FY19 sanction, significant progress has been made in the delivery of the GBE program. Through these activities the Company has also gained further insights that have resulted in the identification of upward pressure on costs over the remainder of the program that will require the commitment of contingency funds. The main incremental cost drivers have been:

1. Increased planned investments in testing and training of \$12.196M. This includes an increase of \$4.482M for technical training for the GBU workforce, \$5.029M for NG employee SME testing resources, \$2.352M for external testing (TCS and PWC), and \$0.333M for End User Training support.
2. Adding an appropriate allowance for AFUDC of \$24.025M. The original business case estimates assumed that, as a result of the proposed agile approach, there would not be material AFUDC incurred by the program. The current plan for capital spend and the associated timelines for GBE modules being delivered into service across the jurisdictions has resulted in an update to this assumption.
3. Greater than anticipated complexity of developing legacy interfaces, ~\$21.168M. The GBE systems need to integrate with National Grid's CIS (Customer Information Systems) to enable work to be assigned at customer premises and to enable the company to give customers visibility to work going on at or near their premise. The company has two CIS systems, CRIS & CSS, both of which are over 20 years old and on very different technology infrastructure to the modern GBE platforms. It was always known this would be a challenging area but it has taken several months longer and cost roughly double what was originally anticipated given the complexities of integrating the needed interfaces.

### 1.14 Key Milestones

Milestone	Target Date: (Month/Year)
Start Up – Complete	04/2017
Partial Sanction Phase 1 - Complete	05/2017
Begin Requirements and Design - Complete	05/2017
Begin Development and Implementation - Complete	07/2017
Partial Sanction Phase 2 - Complete	09/2017





## US Sanction Paper

Milestone	Target Date: (Month/Year)
Portfolio Anchor 1 - Complete	04/2018
Portfolio Anchor 2 – In Progress	10/2018 – 07/2019
Partial Sanction FY20	04/2019
Portfolio Anchor 3	09/2019 - 06/2020
Final Sanction FY21	02/2020
Portfolio Anchor 4	04/2020
Portfolio Anchor 5 (Note PA 4 in last sanction)	06/2020 - 12/2020
Portfolio Anchor 6 (Note PA5 in last sanction)	12/2020
Portfolio Anchor 7 (Note PA6 in last sanction)	12/2020
Project Complete	03/2021
Project Closure Sanction	07/2021

NOTE that the portfolio anchor dates reflect the replanned release timeline approved by the GBE Steering Group in February, 2019 as part of the Strategic Program review.

NOTE that the timelines above cover the anticipated GBE roadmap, including beyond this partial sanction. The sanctioning approach will include periodic reviews of project progress, deliverables, and funding requirements over multiple sanctions. The next sanction request will occur on or before January 2020.

### 1.15 Resources, Operations and Procurement

Resource Sourcing			
Engineering & Design Resources to be provided	<input checked="" type="checkbox"/> Internal	<input checked="" type="checkbox"/> Contractor	
Construction/Implementation Resources to be provided	<input checked="" type="checkbox"/> Internal	<input checked="" type="checkbox"/> Contractor	
Resource Delivery			
Availability of internal resources to deliver project:	<input type="radio"/> Red	<input checked="" type="radio"/> Amber	<input type="radio"/> Green
Availability of external resources to deliver project:	<input type="radio"/> Red	<input checked="" type="radio"/> Amber	<input type="radio"/> Green
Operational Impact			
Outage impact on network system:	<input type="radio"/> Red	<input type="radio"/> Amber	<input checked="" type="radio"/> Green
Procurement Impact			



**US Sanction Paper**

<b>Procurement impact on network system:</b>	<input type="radio"/> Red	<input type="radio"/> Amber	<input checked="" type="radio"/> Green
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**1.16 Key Issues (include mitigation of Red or Amber Resources)**

1	To successfully deliver a program of this scale requires a strong internal team. To date, 125 resources have been hired into the GBE team; over the next 3-4 months that number will peak at around 178 resources. The next challenge will be to retain those resources as the program team are gaining very valuable skills and the technology market in the Boston area remains strong. GBE continues to work closely with its HR Business Partner supported by the Talent Acquisition team in hiring these resources. Work is underway with the HR team on a retention strategy and plan to help reduce the risk from attrition as well as develop a reintegration plan for National Grid personnel back into the business as the program comes to an end.
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**1.17 Climate Change**

Contribution to National Grid's 2050 80% emissions reduction target:	<input checked="" type="radio"/> Neutral	<input type="radio"/> Positive	<input type="radio"/> Negative
Impact on adaptability of network for future climate change:	<input checked="" type="radio"/> Neutral	<input type="radio"/> Positive	<input type="radio"/> Negative

**1.18 List References**

N/A



## US Sanction Paper



### 2 Decisions

#### Decisions

The Senior Executive Sanctioning Committee (SESC) at a meeting held on April 22, 2019.

- (a) APPROVED the investment of \$420.497M +/- a tolerance of 2.5% (=\$10.5M) (note that this includes the previous partial sanctions, the latest of which was \$253.27M in September 2017) for the purposes of Gas Business Enablement in FY20.
- (b) APPROVED the increased total potential investment of \$535.67M contingent upon submittal and approval of Project Sanction following continued successful delivery of the previous stages. Note that the total potential investment including contingency has not changed since the original sanction in May 2017.
- (c) NOTED the previously sanctioned potential incremental Run the Business (RTB) impact of \$21.647M in FY22 (per annum) for an estimated 5 years is still anticipated. The RTB impact in FY20 will be \$17.341M and increases through FY22 to \$21.647M.
- (d) NOTED that Chris Connolly has the approved financial delegation to undertake the activities stated in (a).

Signature.....Date.....

Margaret Smyth

US Chief Financial Officer

Chair, Senior Executive Sanctioning Committee

## US Sanction Paper



### 3 Sanction Paper Detail

<b>Title:</b>	Gas Business Enablement	<b>Sanction Paper #:</b>	USSC-17-222 v3
<b>Project #:</b>	S007743, S007745, S007746, S007747, S007749 and S007752	<b>Sanction Type:</b>	Partial Sanction
<b>Operating Company:</b>	National Grid Svc Company	<b>Date of Request:</b>	April 22, 2019
<b>Author:</b>	Chris Connolly / Mark Collison	<b>Sponsor:</b>	Cordi O'Hara, Chief Operating Officer, U.S. Gas
<b>Utility Service:</b>	Gas	<b>Project Manager:</b>	Kenneth C. Healy III

#### 3.1 **Background**

GBE was originally sanctioned in May 2017 using an annual sanctioning approach starting with FY18. At that time, the full five year roadmap was endorsed. This is the third of four annual partial sanctioning papers and is for the activities in FY20.

#### 3.2 **Drivers**

Gas Business Enablement (GBE) is a multi-year transformation that was designed to address a number of challenges facing the US Gas Business including: the need to improve gas safety performance; continuing to successfully deliver the growing capital program; meeting the demand for customer connections; supporting evolving customer and regulatory expectations; and running the business more effectively. These challenges were amplified by the complexity created by the disparate legacy processes and systems used across the business. This was particularly acute with regards to information systems, most of which were nearing end of life, and were beginning to create unacceptable risks to core operations and future growth.

## **US Sanction Paper**



### **3.3 Project Description**

GBE involves standardizing and simplifying operational processes into new enterprise wide asset management, work management, and mobility systems (the core backbone). Enhanced capabilities focused on customer experience, asset and work management, and data supplement the core backbone. Included within the portfolio are activities to define and implement a refined operating model, refreshed technical field training and a value framework to embed and sustain a culture of accountability and compliance. GBE leverages industry standard solutions, an innovative release strategy, modern delivery methods, and robust governance to support the successful delivery of the desired business outcomes.

The initiatives and high level roadmap can be seen in Appendices 4.2 and 4.3, respectively.

#### **What is the approach to implementing GBE?**

This is a large program that will take multiple years to complete. The roadmap leverages modern approaches to minimize risk and maximize the likelihood that the desired business outcomes are successfully delivered. This includes:

- **Developing a core backbone solution and building incremental enhanced capabilities.** The core includes implementing asset management, work management and mapping solutions over the first four years, focusing on risk reduction. The enhanced capabilities build on the core and are focused on adding incremental value to National Grid's customers throughout the five-year program.
- **Phasing implementation.** The approach avoids a "big bang" implementation by breaking down the program based on work types and geography and prioritizing work types to accelerate delivery and manage risks.
- **Leveraging agile development techniques.** Traditionally, projects like this would be developed using waterfall techniques with a long cycle time between business requirements and a solution. In agile development, the business and IT teams work more collaboratively in short-cycle scrums to prioritize functionality and get to a minimum viable product (MVP). This is the simplest solution that can be implemented, with future enhancements continuously prioritized by value and added as the team learns with the solution.



## ***US Sanction Paper***

- **Taking a “cloud first” approach.** Putting as much of the solution into the cloud as appropriate will provide several benefits, including faster implementation and enhancement adoption, fewer upgrades to legacy infrastructure, reduced risk of obsolescence, and the opportunity to enhance security.

Lessons from previous programs have been built into GBE from the start. The program also initiated a strategic review in the fourth quarter of FY19 as a means to ensure long term successful delivery. The strategic review will address: (1) delays impacting near-term releases and inherent risks with roadmap; (2) structural and commercial construct with system integrators to improve end to end accountability; (3) benefits case review/validation and refresh with new opportunities; and (4) Internal NG structure and RACI. National Grid’s Critical Success Factors have also been embedded into the GBE program from the beginning. In addition, National Grid engaged a value assurance partner to provide an independent assessment of program delivery.

### **3.4 *Benefits Summary***

The primary benefit of GBE is reduced operational risk through the replacement of the aging information systems and processes across the organization. GBE is, therefore, primarily an asset replacement investment. This asset replacement, however, will lay the foundation for enhanced capabilities which will drive a broader range of benefits and performance improvements. Below is a partial list of those additional benefits.

- Enhanced pipeline safety and compliance performance.
- Improved customer experience and satisfaction through improved information and the creation of a customer engagement platform.
- Saving customers time by being able to offer more time bound appointments.
- Enhanced employee enablement with modern field devices.
- Advanced work and asset analytics capabilities.
- Data management capabilities.
- Improved employee technical training and skills.

As part of the Strategic Program review, a refresh of the GBE value case was performed to review and validate the benefit opportunities documented in the original GBE business case (February, 2017). This review, completed by National Grid in April, 2019 estimates an incremental \$10M in benefits on top of the original estimated total of approximately \$40M in quantifiable annual benefits beginning after the enhanced capabilities are fully embedded in FY24. A portion of these benefits will result in cost savings to customers. Below is a chart summarizing the annual benefits. Further details can be seen in Appendix 4.4.



## US Sanction Paper

\$M	Prior Yrs	Current Planning Horizon						Total
		Yr 1 19/20	Yr 2 20/21	Yr 3 21/22	Yr 4 22/23	Yr 5 23/24	Yr 6+ 24/25	
Benefits		14.739	25.984	49.597	50.289	50.289	50.289	241.185
Total		14.739	25.984	49.597	50.289	50.289	50.289	241.185
Type 1 opex included above		1.431	10.364	22.066	24.493	24.493	24.493	107.340

The Type 1 opex savings above, for example \$1.431M in FY19/20, have been incorporated into the gas business unit operational budgets. The remaining benefits, for example \$13.308M in FY19/20 (\$14.739M-\$1.431M) are Type 2 opex or capex benefits which represent productivity increases that have been applied to delivering regulatory, mandated and customer driven work within the remaining budget amount.

### 3.5 Business and Customer Issues

None other than stated elsewhere in this paper.

### 3.6 Alternatives

**Alternative 1:** Bring program activities to a conclusion before the end of the first month of FY20 with spending covered in the current FY19 program sanction. (i.e. FY19 underrun). This alternative was rejected. While basic capabilities will have been released for Rhode Island, none of the business outcomes will be delivered, and no other jurisdiction will receive any capabilities. The majority of the spend to date would need to be written off. FY20 is a critical year to deploy capabilities to the other jurisdictions and continue developing planned capabilities to deliver the business case.

**Alternative 2:** Retain the existing dual-SI model, commercial relationships and program timelines. This option was rejected as it was determined that the existing dual-SI model and incentive mechanisms did not enable adequate program control and therefore give adequate certainty of program cost and delivery timelines. In addition the option to stick to the original overall program timeline did not give the opportunity to optimize program cost by reducing the period during which time-driven (as opposed to module capability driven) costs would be incurred.

***US Sanction Paper***



**3.7      *Safety, Environmental and Project Planning Issues***

N/A





## US Sanction Paper

### 3.8 Execution Risk Appraisal

Risk Breakdown Structure Category	Qualitative Assessment / Risk Response Strategy				Risk Score
	Risk ID + Title	IF Statement	THEN Statement	Risk Response Strategy	
Program Delivery	GBE Transition To Single System Integrator	If the transition from two to one system integrator is not managed effectively	the quality of development of the Salesforce solution could be compromised and timely delivery of the program roadmap could be disrupted, leading to increased costs and delivery risks	1) The GBE program has assigned a hands-on Transition Manager to ensure oversight and effective management of all transition activities 2) SI Partners have assigned hands-on transition managers to support planning, management and execution 3) Program leadership routine monitors progress and sets clear priorities 4) Engage/contract experienced resources during the transition for knowledge transfer and ongoing continuity	3* (Medium)
Program Delivery	GBE End to End Testing Delays	If, in the replanned GBE road map, insufficient time has been allocated for the completion of End to End testing, or unexpected delays are experienced	then the quality of User Acceptance Testing could be impacted, resulting in a poor quality production solution, degraded user acceptance and increased cost due to poor quality or business disruption	1) Complete Strategic Review to address commercial risks 2) Optimize End To End Test cycles for efficiency 3) Onboard additional developers and test resources, increase business SME engagement	2 (Medium-Low)
Program Delivery	Misalignment Between US Major Programs	If integration and alignment between major programs across the US is completed in a timely and effective manner	then missed integrations between programs could result in additional costs, failure to meet stakeholder expectations and degraded solution functionality	1) Agile Delivery Methodology is being leveraged and provides key check points in a set cadence of integration ceremonies and activities 2) Embed resources into the GBE program to provide a link into legacy functions and activities 3) Establish routine governance activities between program and engage with IT and Finance (Back Office) governance structures	1 (Low)
Business Risk	Slow End User Adoption of the GBE Solution	If the GBE program does not properly prepare the Gas Business user community to accept new devices, processes and software tools	then learning curves will be unnecessarily steep which will impact daily operations and construction work, thus raising costs and business risks, eroding user confidence and impacting NG ability to operate a safe and compliant way	1) Leverage pilots to build learning early and phase implementation to contain issues 2) Leverage Agile methods to engage business users more actively in the design of new practices and solutions 3) Align GBE and Gas operating model attributes to drive accountability for desired behaviours and outcomes	1 (Low)
Program Delivery	GBE resourcing and capability building	If the GBE program is unable to staff to the required levels with the necessary skills and capabilities within the planned scope and schedule	then GBE may not be able to deliver a fit-for-purpose solution within required timelines, thus raising costs for 3rd Party support, re-work and increasing risks of business disruption	1) Develop timely, realistic resource plans for recruitment of full time resources and recalibrate periodically to reflect experience and improved ways of working 2) Engage business leadership on a frequent basis to provide visibility into requirements for part time business subject matter expertise 3) Leverage NG's commercial capabilities to engage external partners that can provide appropriate expertise as a short term measure to close gaps	3 (Medium)
				* Leveraged the IS Risk template for scoring software/technology projects	

### 3.9 Permitting

N/A

### 3.10 Investment Recovery

N/A



## ***US Sanction Paper***

### ***3.10.1 Investment Recovery and Regulatory Implications***

Full regulatory recovery for the GBE solution is challenging within the current regulatory construct due to the phasing of spend on an enterprise solution vs. the phased timing of rate case filings for each of the affected operating companies. This is exacerbated by the non-recurring Opex spend that is challenging to recover in all jurisdictions and the comparatively short 10 year depreciation life of the assets compared to traditional gas and electric assets.

Several filing strategy scenarios were modelled. The highest recovery was 90.3%, achieved by implementing four geographic-specific GBE implementations carefully aligned to rate case filings. However, this would increase the total cost to our customers by \$292.000M or a 54% increase in total costs due to the loss of synergies of an enterprise solution.

The company has filed GBE as part of its recent Niagara Mohawk, Narragansett Electric & Gas, and Massachusetts Gas rate cases, with support for the full program scope and its recovery. The company will file GBE as part of its future KEDNY and KEDLI rate cases on April 26, 2019.

The GBE team continues to work with the Steering Group, Strategy & Regulation, and Finance to identify solutions by jurisdiction that provide a fair and balanced outcome for customers and the Company.

### ***3.10.2 Customer Impact***

Noted elsewhere in this paper.

### ***3.10.3 CIAC / Reimbursement***

N/A

## ***3.11 Financial Impact to National Grid***





**US Sanction Paper**

**3.11.1 Cost Summary Table**

Project Number	Project Title	Project Estimate Level (%)		Prior Yrs	Current Planning Horizon						Total
					[Actual] Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 +	
					2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	
S007743	GBE Power Plan/Supply Chain	+/- 6%	CapEx	8.322	1.886	1.309	0.000	0.000	0.000	0.000	11.517
			OpEx	2.941	0.188	0.141	0.000	0.000	0.000	0.000	3.269
			Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
			Total	11.262	2.074	1.450	0.000	0.000	0.000	0.000	14.786
S007745	GBE Process and Bus Requirements	+/- 6%	CapEx	103.751	58.102	39.736	0.000	0.000	0.000	0.000	201.588
			OpEx	11.273	4.725	3.404	0.000	0.000	0.000	0.000	19.403
			Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
			Total	115.024	62.827	43.140	0.000	0.000	0.000	0.000	220.991
S007746	GBE - Portfolio Management	+/- 6%	CapEx	19.888	10.084	3.977	0.000	0.000	0.000	0.000	33.949
			OpEx	38.940	12.757	7.038	0.000	0.000	0.000	0.000	58.736
			Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
			Total	58.828	22.841	11.016	0.000	0.000	0.000	0.000	92.685
S007747	GBE Bus Design Readiness & Deploy	+/- 6%	CapEx	6.023	13.706	8.997	0.000	0.000	0.000	0.000	28.726
			OpEx	19.628	12.135	5.808	0.000	0.000	0.000	0.000	37.571
			Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
			Total	25.652	25.842	14.804	0.000	0.000	0.000	0.000	66.298
S007749	GBE Information Service	+/- 6%	CapEx	42.993	39.495	18.054	0.000	0.000	0.000	0.000	100.542
			OpEx	11.775	15.246	3.522	0.000	0.000	0.000	0.000	30.543
			Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
			Total	54.767	54.741	21.576	0.000	0.000	0.000	0.000	131.084
S007752	GBE Hardware	+/- 6%	CapEx	1.291	1.054	3.046	0.000	0.000	0.000	0.000	5.391
			OpEx	3.948	0.487	0.000	0.000	0.000	0.000	0.000	4.435
			Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
			Total	5.239	1.540	3.046	0.000	0.000	0.000	0.000	9.826
Total Project Sanction			CapEx	182.267	124.326	75.119	0.000	0.000	0.000	0.000	381.713
			OpEx	88.505	45.538	19.913	0.000	0.000	0.000	0.000	153.957
			Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
			Total	270.772	169.865	95.032	0.000	0.000	0.000	0.000	535.669

**3.11.2 Project Budget Summary Table**

Spend (\$M)	Prior Yrs	Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 +	Total
		2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	
CapEx	169.87	83.86	46.29	14.52	0.52			315.06
OpEx	103.54	34.92	18.78	4.88	1.10			163.22
Removal								0.000
Total Cost in Business Plan	273.412	118.780	65.070	19.400	1.620	0.000	0.000	478.282



## US Sanction Paper

### Variance (Business Plan-Project Estimate)

		Current Planning Horizon						
		[Actual] Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 +	
\$M	Prior Yrs	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	Total
CapEx	(12.397)	(40.466)	(28.829)	14.520	0.520	0.000	0.000	(66.653)
OpEx	15.037	(10.618)	(1.133)	4.880	1.100	0.000	0.000	9.265
Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Cost in Bus. Plan	2.640	(51.085)	(29.962)	19.400	1.620	0.000	0.000	(57.387)

The increased cost following the re-plan is still within the total planned spend + contingency from the prior sanction. Note also that in FY19 the Information Technology department agreed to reduce their capital spend by \$9M to partly offset the incremental spend in GBE resulting from the complexities of the legacy systems integrations.

### 3.11.3 Cost Assumptions

The original cost forecasts were developed using proprietary tools from an experienced consulting partner, and further validated by the National Grid program team and an experienced design assurance partner. These have been updated as actual costs have become available through procurement events and assumptions have been updated as better insight has become available.

Since the FY19 sanction, significant progress has been made in the delivery of the GBE program and through these activities there have been a number of learnings that are resulting in the upward pressure on costs in FY20 and FY21 that will require the commitment of contingency funds. The main incremental drivers in cost have been:

1. Increased planned investments in testing and training of \$12.196M. This includes an increase of \$4.482M for technical training for the GBU workforce, \$5.029M for NG employee SME testing resources, \$2.352M for external testing (TCS and PWC), and \$0.333M for End User Training support.
2. Adding an appropriate allowance for AFUDC of \$24.025M. The original business case estimates assumed that, as a result of the proposed agile approach, there would not be material AFUDC incurred by the program. The current plan for capital spend and the associated timelines for GBE modules being delivered into service across the jurisdictions has resulted in an update to this assumption.
3. Greater than anticipated complexity of developing legacy interfaces, ~\$21.168M. The GBE systems need to integrate with National Grid's CIS (Customer Information Systems) to enable work to be assigned at customer premises and to enable the company to give customers visibility to work going on at or near their premise. The company has two CIS systems, CRIS & CSS, both of which are over 20 years old and on very different technology infrastructure to the modern



### ***US Sanction Paper***

GBE platforms. It was always known this would be a challenging area but it has taken several months longer and cost roughly double what was originally anticipated given the complexities of integrating the needed interfaces.

NOTE the FY20 sanction includes committing to spend \$57.389M of the \$61.000M contingency for the program.

### ***3.11.4 Net Present Value / Cost Benefit Analysis***

#### ***3.11.4.1 NPV Summary Table***

N/A

#### ***3.11.4.2 NPV Assumptions and Calculations***

N/A

### ***3.11.5 Additional Impacts***

N/A

### ***3.12 Statements of Support***

#### ***3.12.1 Supporters***

The GBE Steering Group has aligned their part of the business to support the project.

#### ***3.12.2 Reviewers***

The reviewers have provided feedback on the content/language of the paper.

Function	Individual	Area
	Midkiff, Felicia	Dir. FBP Elec BU
	Bostic, Christina	Dir. FBP Elec BU



## US Sanction Paper

Finance	McNeill, Brian	Dir. FBG, Gas BU
	Morris, Bernadette	New York
	Byrne, Andrew	FERC
Regulatory	O'Shaughnessy, John	New York Electric
	Gurry, Renee	New England Electric
	Artuso, Michael	FERC
Jurisdictional Delegate(s)	Wolf, Donald	Gas – New York
	Smith, Amy	Gas – New England
	Hill, Terron	Gas – FERC
Procurement	Chevere, Diego	All

## 4 Appendices

### 4.1 Sanction Request Breakdown by Spend Type Project

\$M	S007743	S007745	S007746	S007747	S007749	S007752	Total
CapEx	10.227	163.639	28.652	18.226	83.631	2.218	306.593
OpEx	3.128	15.999	31.557	31.763	27.021	4.435	113.904
Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	13.355	179.637	60.210	49.990	110.653	6.653	420.497

## US Sanction Paper



### 4.2 Initiatives List

The program work streams and the initiatives within each work stream.

## Key Initiatives



Workstreams	Initiatives
GBE Portfolio Office	
Change Management	Program Level People Strategy, Stakeholder Management & Engagement, Enablement, Business Readiness & Sustainment, Workforce Strategy / Labor Strategy
Change Leadership	Organizational Change Readiness, Volunteer Network, Organizational Alignment
Operating Model	Value Realization, Operations Performance Improvement, Organizational Structure & Design, Governance
Asset Management	Integrity Management – Corrosion and I&R, Integrity Management – TIMP and DIMP, Asset Investment Planning and Management (AIPM) – Enhancements and Integrations, Advanced Analytics – Platform and Use Cases
Customer Engagement	Structured Experiences, Contact Center Interaction, Field Interaction, Customer Interaction, Large Commercial & Industrial Landlord Interaction, Supporting Through Data
GIS	GIS Consolidation, GIS Data Remediation, Landbase Coflition, GIS/EAM Integration, Graphical Work Design (GWD), Complex Design (CAD) & Estimating (ESW)
Work Management Field Enablement	Business Architecture Design, Corrosion and I&R, Customer, Collections, Resource Mgmt, CU Governance and Library, PowerPlan Integration
	Construction Work, Leak Inspection and Leak Repair, Projects and Program Management, Work Forecasting & Planning Solution, WMFE Optimization
Supply Chain	Material Traceability, SC Master Data Improvements, Fulfillment Model / Inventory Optimization, Integrated Supply & Demand Planning / Integrated Business Planning, Warehouse & Network Optimization
Field Technical Training	Employee Competence, Standard Operating Procedures, Technology
Data Management	Data Governance, Data Profiling & Cleansing, Data Quality Dashboards & DQI Metrics, Integration & Conversion, Advanced Analytics
ISE	Integration, Technology Initiatives, Enabling Capabilities
Value Assurance	

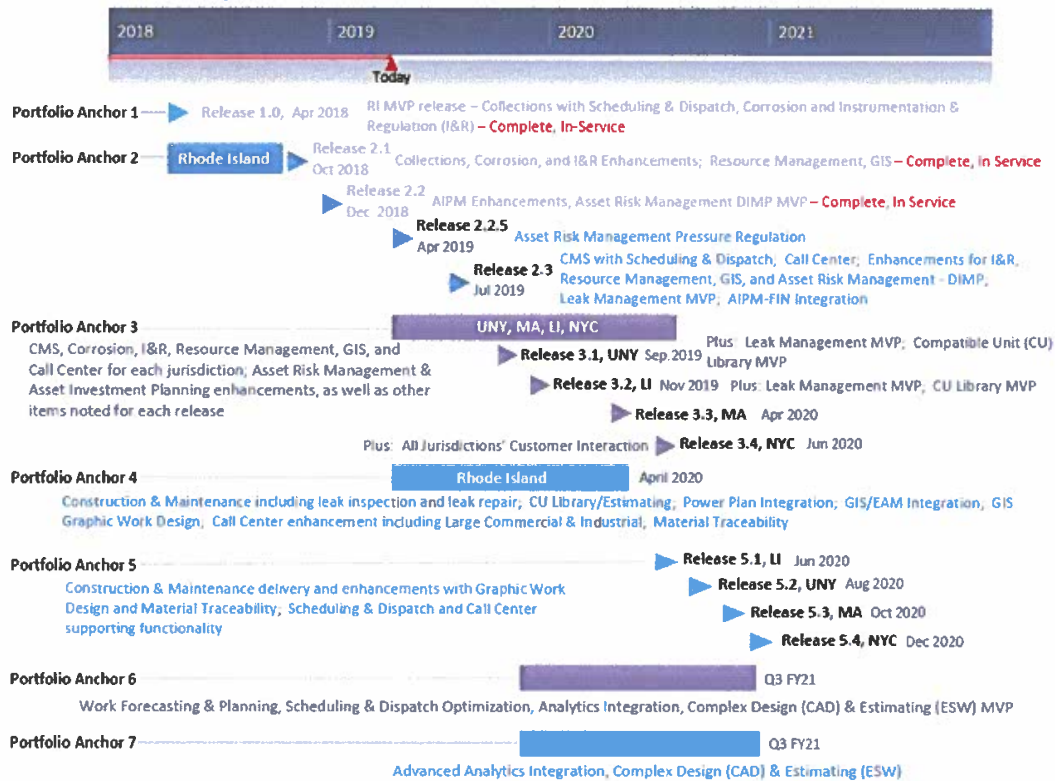
## US Sanction Paper



### 4.3 High Level Roadmap of Capabilities to be delivered over remaining 4 years

#### GBE Roadmap

March 2019







## US Sanction Paper

### 4.4 Benefits Detail

Breakdown of the \$50.3M of steady state long-run annual Capex and Opex benefits by category, Type 1 (direct savings) and Type 2 (measurable KPI improvements) and benefits over time.

Benefit	2020 Year 1	2021 Year 2	2022 Year 3	2023 Year 4	2024 Year 5
Benefit 1a - Unproductive Time (Better Scheduling)	\$ 215,303	\$ 1,040,647	\$ 1,373,338	\$ 1,373,338	\$ 1,373,338
Benefit 1b - Productive Time (Route Optimization)	\$ 229,443	\$ 1,113,606	\$ 1,465,167	\$ 1,465,167	\$ 1,465,167
Benefit 1c - Mileage Reduction (Route Optimization)	\$ 60,427	\$ 293,240	\$ 388,198	\$ 388,198	\$ 388,198
Benefit 1d - Dispatcher FTE (Manual Task Automation)	\$ 28,599	\$ 111,955	\$ 143,692	\$ 143,692	\$ 143,692
Benefit 1e - Unproductive Time (Filler Jobs)	\$ -	\$ -	\$ -	\$ -	\$ -
Benefit 1f - Fines (Late/No Show)	\$ 1,299	\$ 173,746	\$ 275,915	\$ 275,915	\$ 275,915
Benefit 1g - Productive Time (Time per Job)	\$ 102,747	\$ 483,515	\$ 646,816	\$ 646,816	\$ 646,816
Benefit 1h - Unproductive Time (Job Bundling)	\$ 42,166	\$ 196,861	\$ 254,063	\$ 254,063	\$ 254,063
Benefit 2a - Summons and Fines	\$ -	\$ 2,092,035	\$ 5,578,760	\$ 5,578,760	\$ 5,578,760
Benefit 2b - M&C Productivity (OT Reduction)	\$ -	\$ 2,062,286	\$ 5,254,736	\$ 5,254,736	\$ 5,254,736
Benefit 2c - Contractor Savings	\$ -	\$ -	\$ -	\$ -	\$ -
Benefit 2d - Mileage Reduction (Route Optimization)	\$ -	\$ 29,045	\$ 74,496	\$ 74,496	\$ 74,496
Benefit 2e - Gas Compliance Penalties	\$ -	\$ 5,117,083	\$ 13,520,800	\$ 13,520,800	\$ 13,520,800
Benefit 3a - Analytics (Risk-Based Asset Prioritization)	\$ -	\$ -	\$ -	\$ 2,427,344	\$ 2,427,344
Benefit 3b - New Asset Management Benefits	\$ -	\$ -	\$ -	\$ 132,667	\$ 132,667
Benefit 4a - Call Center Volume (Self Service)	\$ 159,264	\$ 793,774	\$ 1,041,538	\$ 1,041,538	\$ 1,041,538
Benefit 4b - Service Quality Penalties	\$ -	\$ -	\$ -	\$ -	\$ -
Benefit 4c - CMS Unproductive Time (Calls to Customer)	\$ 38,272	\$ 198,622	\$ 265,511	\$ 265,511	\$ 265,511
Benefit 4d - CMS Unproductive Time (UTC Reduction)	\$ 8,056	\$ 71,722	\$ 103,347	\$ 103,347	\$ 103,347
Benefit 5a - SC Budget (Warehouse Staff & Drivers)	\$ 1,724,161	\$ 2,969,388	\$ 4,023,041	\$ 4,023,041	\$ 4,023,041
Benefit 5b - Lease and Materials Carrying Costs	\$ 1,529,391	\$ (235,734)	\$ 2,147,489	\$ 1,224,102	\$ 1,224,102
Benefit 5c - M&C Unproductive Time (Wait for Materials)	\$ 800,000	\$ 3,600,000	\$ 8,000,000	\$ 8,000,000	\$ 8,000,000
Benefit 5d - Stock Level Reduction	\$ 9,800,000	\$ 4,400,000	\$ 1,200,000	\$ -	\$ -
Benefit 6a - Back-office productivity - data entry clerks	\$ -	\$ 814,626	\$ 2,073,593	\$ 2,073,593	\$ 2,073,593
Benefit 7a - Graphical work design automation	\$ -	\$ -	\$ 131,819	\$ 131,819	\$ 131,819
Benefit 7b - Data scrubbing automation	\$ -	\$ -	\$ 255,368	\$ 510,735	\$ 510,735
Benefit 7c - Reduced mismatch damages - record errors	\$ -	\$ 574,281	\$ 574,281	\$ 574,281	\$ 574,281
Benefit 7d - Reduced mismatch damages - record locator	\$ -	\$ 2,229	\$ 2,229	\$ 2,229	\$ 2,229
Benefit 8a - Reduction of engineering admin tasks	\$ -	\$ 81,034	\$ 81,034	\$ 81,034	\$ 81,034
Benefit 8b - Improved estimating accuracy	\$ -	\$ -	\$ 560,000	\$ 560,000	\$ 560,000
Benefit 9a - Reduction of meter verification jobs	\$ -	\$ -	\$ 161,365	\$ 161,365	\$ 161,365
	\$ 14,739,127	\$ 25,983,960	\$ 49,596,595	\$ 50,288,587	\$ 50,288,587

Note: of the \$14.739M total savings in FY20, \$1.431M is Type 1 opex savings which have been incorporated into the gas business unit operational budgets. The remaining benefits, for example \$13.308M in FY19/20 (\$14.739M-\$1.431M) are Type 2 opex or capex benefits which represent productivity increases that have been applied to delivering regulatory, mandated and customer driven work within the remaining budget amount.



## US Sanction Paper

### 4.5 Operating Company Allocation

Allocations Based on Number of Gas Retail Customers (C-210) and All Retail Customers (C-175)

#### Total Expenditure

Operating Company TOTEX \$'M	FY18	FY19	FY20	FY21	FY22	FY23	Total
Niagara Mohawk Power Corp.- Electric Distr.	0.910	7.019	5.439	3.631	0.000	0.000	16.999
Niagara Mohawk Power Corp. - Gas	13.393	26.269	26.828	14.801	0.000	0.000	81.291
KeySpan Energy Delivery New York	27.403	54.041	55.192	30.448	0.000	0.000	167.084
KeySpan Energy Delivery Long Island	12.680	25.024	25.558	14.100	0.000	0.000	77.362
Massachusetts Electric Company	0.728	5.551	4.301	2.872	0.000	0.000	13.452
Nantucket Electric Company	0.005	0.057	0.044	0.030	0.000	0.000	0.136
Boston Gas Company	15.122	29.711	30.345	16.740	0.000	0.000	91.918
Colonial Gas Company	4.399	8.673	8.858	4.886	0.000	0.000	26.816
Narragansett Electric Company	0.238	2.093	1.621	1.083	0.000	0.000	5.034
Narragansett Gas Company	5.882	11.434	11.678	6.442	0.000	0.000	35.436
<b>Total Opex</b>	<b>80.760</b>	<b>169.872</b>	<b>169.865</b>	<b>95.032</b>	<b>0.000</b>	<b>0.000</b>	<b>515.529</b>
					FY17 expenditure		20.142
					Contingency		3.611
					<b>Total</b>		<b>539.282</b>

#### Operational Expenditure

Operating Company OPEX \$'M	FY18	FY19	FY20	FY21	FY22	FY23	Total
Niagara Mohawk Power Corp.- Electric Distr.		0.609	0.377	0.240	0.000	0.000	1.226
Niagara Mohawk Power Corp. - Gas	4.570	6.781	7.576	3.286	0.000	0.000	22.213
KeySpan Energy Delivery New York	9.328	13.951	15.585	6.760	0.000	0.000	45.624
KeySpan Energy Delivery Long Island	4.358	6.460	7.218	3.131	0.000	0.000	21.167
Massachusetts Electric Company		0.481	0.298	0.190	0.000	0.000	0.970
Nantucket Electric Company		0.005	0.003	0.002	0.000	0.000	0.010
Boston Gas Company	5.208	7.670	8.569	3.717	0.000	0.000	25.164
Colonial Gas Company	1.488	2.239	2.501	1.085	0.000	0.000	7.313
Narragansett Electric Company	0.011	0.181	0.113	0.072	0.000	0.000	0.377
Narragansett Gas Company	2.062	2.952	3.298	1.430	0.000	0.000	9.742
<b>Total Opex</b>	<b>27.025</b>	<b>41.329</b>	<b>45.538</b>	<b>19.913</b>	<b>0.000</b>	<b>0.000</b>	<b>133.806</b>

#### Capital Expenditure

Operating Company CAPEX \$'M	FY18	FY19	FY20	FY21	FY22	FY23	Total
Niagara Mohawk Power Corp.- Electric Distr.	0.910	6.411	5.061	3.391	0.000	0.000	15.773
Niagara Mohawk Power Corp. - Gas	8.823	19.488	19.253	11.514	0.000	0.000	59.078
KeySpan Energy Delivery New York	18.075	40.090	39.607	23.688	0.000	0.000	121.460
KeySpan Energy Delivery Long Island	8.322	18.564	18.341	10.969	0.000	0.000	56.196
Massachusetts Electric Company	0.728	5.070	4.003	2.682	0.000	0.000	12.482
Nantucket Electric Company	0.005	0.052	0.041	0.028	0.000	0.000	0.126
Boston Gas Company	9.914	22.041	21.776	13.023	0.000	0.000	66.754
Colonial Gas Company	2.911	6.434	6.356	3.801	0.000	0.000	19.503
Narragansett Electric Company	0.227	1.911	1.509	1.011	0.000	0.000	4.658
Narragansett Gas Company	3.820	8.482	8.380	5.012	0.000	0.000	25.694
<b>Total Opex</b>	<b>53.735</b>	<b>128.543</b>	<b>124.326</b>	<b>75.119</b>	<b>0.000</b>	<b>0.000</b>	<b>381.723</b>





***US Sanction Paper***

**4.6     *NPV Summary***

N/A

**4.7     *Customer Outreach Plan***

N/A

The Narragansett Electric Company  
d/b/a National Grid  
RIPUC Docket No. 4770  
Gas Business Enablement Program Quarterly Report  
Rate Year 1 - Third Quarter Ended May 31, 2019  
Responses to the Division's First Set of Data Requests  
Issued on July 31, 2019

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Division 1-4

Request:

The Settlement Agreement in Section 12 f. requires the Company to provide “explanations of variances between budgeted and actual spending.” Referring to Attachment 1, Schedules 1, there are no variance explanations. Please provide a reasonable explanation for each variance in the schedule.

Response:

Please see Attachment DIV 1-4 for a copy of Attachment 1, Schedule 1 from the Company's Gas Business Enablement Program quarterly report for the third quarter of Rate Year 1. For each CAPEX variance for the period of September 2018 through May 2019, the Company has added an explanation in the last column of the attachment. With respect to “Total GBE Spend – TOTEX,” this represents the total expenditure (both CAPEX and OPEX) variance for the period of September 2018 through May 2019, which is driven primarily by timing differences and change orders with anticipated payments to the system integrator consultants as part of the strategic review with Steering Committee approval (see Pages 3-4 of the Company's Gas Business Enablement Program quarterly report for the second quarter of Rate Year 1).

**TOTAL SERVICE COMPANY SPEND BY COST CENTER**  
**September 2018 - May 2019**

**GAS BUSINESS ENABLEMENT**

		Q1 - Q3 RY19				
GBE - COST CENTER DESCRIPTION	GBE - COST CENTER #	Sept'18-May'19 BUDGET	Sept'18-May'19 ACTUALS	Sept'18-May'19 VARIANCE \$	Sept'18-May'19 VARIANCE %	Variance Explanation
Processes & Business Requirements	4386	\$58,868,099	\$63,528,665	(\$4,660,566)	-4.78%	Represents CAPEX variance primarily driven by timing differences from System Integrators activities from the re-planning exercise, which resulted in an updated roadmap as noted in the Company's GBE Program second quarterly report.
Information Services	4387	\$22,655,366	\$28,104,662	(\$5,449,296)	-5.59%	Represents CAPEX variance primarily driven by increased spend on legacy interfaces for the two CIS systems (CRIS and CSS) due to unanticipated complexities of the legacy interfaces when the initial estimate was developed.
Business Design, Readiness & Deployment	4388	\$10,103,011	\$2,260,920	\$7,842,091	8.05%	Represents CAPEX variance primarily driven by timing differences from System Integrators and Technical Training activities from the re-planning exercise, which resulted in an updated roadmap as noted in the Company's GBE Program second quarterly report.
Portfolio Management	4389	\$5,778,825	\$5,336,867	\$441,958	0.45%	Represents CAPEX variance primarily driven by timing differences from the re-planning exercise, which resulted in an updated roadmap as noted in the Company's GBE Program second quarterly report.
<b>TOTAL GBE - CAPEX</b>		<b>\$97,405,301</b>	<b>\$99,231,114</b>	<b>(\$1,825,813)</b>	<b>-1.87%</b>	
<b>TOTAL GBE SPEND - TOTEX</b>		<b>\$138,341,476</b>	<b>\$129,703,120</b>	<b>\$8,638,357</b>		